

JPRS-UES-87-002

27 MARCH 1987

# USSR Report

EARTH SCIENCES

TABLES OF CONTENTS

JPRS-UES-86-001, 10 JANUARY 1986-

JPRS-UES-86-008, 4 DECEMBER 1986

**FBIS**

FOREIGN BROADCAST INFORMATION SERVICE

## NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

## PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

10 January 1986

## USSR REPORT EARTH SCIENCES

### CONTENTS

#### METEOROLOGY

- AN-30 Photography Airplane Outfitted for Cloud-Seeding Missions  
(T. Kuznetsova, A. Pimenov; PRAVDA UKRAINY, 15 Aug 85)..... 1
- Facility for Modeling Origins of Typhoons  
(A. Mel'nikov; PRAVDA, 8 Jul 85)..... 3
- Meteorological Adaptation Research at Biology Institute  
(Ye. Krushel'nitskiy; TRUD, 26 Sep 85)..... 5
- Work on Mathematical Modeling of Tropical Storms' Wakes  
(A. Yakovlev; GUDOK, 29 Sep 85)..... 7

#### OCEANOGRAPHY

- Airborne Laser for Measuring Plankton in Lake  
(KAZAKHSTANSKAYA PRAVDA, 25 Aug 85)..... 8
- Scientific Ship 'Zubov' Completes North Atlantic Cruise  
(S. Samoylis; LENINGRADSKAYA PRAVDA, 9 Jul 85)..... 9
- Research Ship 'Zubov' To Launch Weather Rockets in Atlantic  
(T. Volgina; LENINGRADSKAYA PRAVDA, 14 Aug 85)..... 10
- Hydrophysical Studies From Ship 'Veymer' in North Atlantic  
(SOVETSKAYA BELORUSSIYA, 13 Aug 85)..... 11
- Port Apparatus for Remote Detection of Sea Roughness  
(SOVETSKAYA LITVA, 24 Jul 85)..... 12
- Research Ships 'Keldysh' and 'Kurchatov' Return From Atlantic  
(PRAVDA, 22 Jul 85)..... 13

Device for Analyzing Underwater TV Pictures With IR Capability (A. Isayev; TRUD, 14 Aug 85).....	14
Studies of Dolphins' Communicating Systems (I. Nekrasov; TRUD, 11 Oct 85).....	15
Research Ship 'Shuleykin' in Studies of Arctic Seas (B. Moiseyev; VODNIY TRANSPORT, 7 Sep 85).....	16
Scanning Submersible Craft Tested From Research Ship 'Sidorenko' (V. Udachin; SOVETSKAYA ROSSIYA, 9 Aug 85).....	17
Long-Term Program To Study Ocean's Energy-Active Zones Described (S. Lappo; KOMMUNIST, 11 Sep 85).....	18
Hydrophysical Experiment 'Mezopoligon-85' in Tropical Atlantic (V. Titov; VODNIY TRANSPORT, 1 Oct 85).....	19
Seasonal Sources of Thermohaline Circulation in North Atlantic (L. I. Galerkin, A. S. Monin, et al.; DOKLADY AKADEMII NAUK SSSR, No 3, May 85).....	20
Mechanism of Fixation of Mn and Fe On Surface of Ferromanganese Nodules (A. A. Morozov; DOKLADY AKADEMII NAUK SSSR, No 3, May 85)....	21
Nuclear Physical Methods for Determining Carbon in Oceanic Suspensions (I. Ya. Barit, L. Ye. Kuzmin, et al.; DOKLADY AKADEMII NAUK SSSR, No 3, May 85).....	22
Fluctuations in Propagation Time and Direction of Arrival of Signal Reflected From Wave-Covered Sea Surface (V. M. Frolov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 7, Jul 85).....	22
Influence of Taylor-Hogg Cone on Density Field Structure in Stratified Ocean With Pycnocline (M. B. Timonov, N. K. Shelkovnikov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 7, Jul 85).....	23
Maslov Operator Method in Problem of Waves in Water Generated by Source Moving Over Uneven Bottom (S. Yu. Dobrokhotoy, P. N. Zhevandrov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 7, Jul 85).....	24
Evaluation of Coefficients of Heat and Moisture Exchange Between Ocean and Atmosphere (V. V. Yefimov, N. A. Timofeyev, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 7, Jul 85).....	24

Estimating Density Inhomogeneity of Upper Mantle Under Atlantic Ocean Using Data From Comprehensive Regional Geophysical Research (A. V. Ladynin, E. M. Litvinov, et al.; GEOLOGIYA I GEOFIZIKA, No 5, May 85).....	25
Structure of Sedimentary Cover of Red Sea Determined From Seismic Data (I. N. Yelnikov, L. P. Zonenshayn; GEOTEKTONIKA, No 4, Jul-Aug 85).....	26
Patterns of Relative Positioning of Oceanic Rifts and Transform Faults (N. Yu. Bocharova, Ye. G. Mirlin, et al., GEOTEKTONIKA, No 4, Jul-Aug 85).....	26
Acoustic Field in Underwater Waveguide With Random Inhomogeneities (A. G. Nechayev; AKUSTICHESKIY ZHURNAL, No 3, May-Jun 85)...	27
Determining Universal High-Frequency Asymptotic Spectral Forms Associated With Propagation of Intensive Acoustic Noise (L. Bjorno, S. N. Gurbatov; AKUSTICHESKIY ZHURNAL, No 3, May-Jun 85).....	28
Differently Directed Movements of Gas Bubbles in Vibrating Fluids in Presence of Physical Inhomogeneities (N. A. Pelykh; PRIKLADNAYA MEKHANIKA, No 6, Jun 85).....	28

#### TERRESTRIAL GEOPHYSICS

Kyzyl-Kumy Superdeep Borehole Reaches 1,000-Meter Mark (LENINGRADSKAYA PRAVDA, 17 Jul 85).....	30
Work on Geological Environment of Earthquakes (V. Vadimov; SOVETSKAYA KIRGIZIYA, 5 Jul 85).....	31
Geochemistry Discovery Opens Way to New Mining of Rare Metals (Sh. Muladzhanov; MOSKOVSKAYA PRAVDA, 20 Sep 85).....	32
Radiometric Airborne Moisture Meter (M. Gusev; TRUD, 19 Jul 85).....	34
Optical Cables for Taking Readings From Boreholes (A. Skorobogatov; SOVETSKAYA KIRGIZIYA, 25 Sep 85).....	35
Theory of Field Propagation Advances MHD Probing of Earth's Crust (M. Savin; IZVESTIYA, 11 Sep 85).....	36
Experiments To Record Gravitons (SOTSIALISTICHESKAYA INDUSTRIYA, 4 Jul 85).....	38



Earth Physicist Describes U.S. Nuclear Test Monitoring System (IZVESTIYA, 23 Aug 85).....	40
Radon as Indicator of Permeability Zones for Steam Hydrotherms (A. M. Rozhkov; VULKANOLOGIYA I SEYSMOLOGIYA, No 3, May-Jun 85).....	41
Experience With Surface IR Survey for Estimating Temperature and Heat Radiation of Thermal Fields of Mutnovskiy Volcano (Kamchatka) (B. G. Polyak, B. A. Bezukh, et al.; VULKANOLOGIYA I SEYSMOLOGIYA, No 3, May-Jun 85).....	41
Neotectonics and Volcanism in Eastern Volcanic Zone of Kamchatka (I. V. Florenskiy, V. G. Trifonov; GEOTEKTONIKA, No 4, Jul-Aug 85).....	42
PHYSICS OF UPPER ATMOSPHERE	
Aerosol Chamber at Atmospheric Optics Institute (SOTSIALISTICHESKAYA INDUSTRIYA, 10 Oct 85).....	43
Regularity of Structure of Inhomogeneities of Scattering of Optical Radiation and Their Relationship to Meteorological Parameters (Yu. A. Polkanov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 85).....	44
Sound Radiation in Atmosphere During Underwater Earthquake (S. P. Vdovichenko, Yu. M. Zaslavskiy; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 85).....	45
Calculation of Sound Fields in Atmospheric Refraction Waveguide (A. V. Razin; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 85).....	45
Acoustic Wave Propagation in Polymeric Fluid With Vapor-Gas Bubbles (S. P. Levitskiy, Z. P. Shulman; AKUSTICHESKIY ZHURNAL, No 3, May-Jun 85).....	46
Internal Gravity Waves, Fluctuations of Solar Ultraviolet Radiation and Ionospheric Parameters (R. S. Steblova, I. A. Freyzon, et al.; DOKLADY AKADEMII NAUK SSSR, No 2, Jul 85).....	47
Dialog System for Numerical Modeling of Energy Losses of Atmospheric Optical Waves (V. Ye. Zuyev, Yu. S. Makushkin, et al.; DOKLADY AKADEMII NAUK SSSR, No 2, Jul 85).....	47
One Method for Compensating Distortions Caused by Atmospheric Turbulence (V. N. Filinov, G. P. Chernyy; OPTIKA I SPEKTROSKOPIYA, No 3, Mar 85).....	48

# ARCTIC AND ANTARCTIC RESEARCH

Research Ship 'Kurchatov' Back From Gulf Stream's Arctic Zone (SOVETSKAYA ROSSIYA, 10 Oct 85).....	49
Testing of Wind Power Units at Antarctic Station (G. Sergeyev; VODNYI TRANSPORT, 15 Oct 85).....	50
'SP-26' Arctic Station's Movements and Activities (N. Blinov; VODNYI TRANSPORT, 26 Sep 85).....	51
Pollution of Arctic Seas by Radioactive Wastes of West European Atomic Industry Plants (S. M. Vakulovskiy, A. I. Nikitin, et al.; ATOMNAYA ENERGIYA, No 6, Jun 85).....	52
Postulated Meteoritic Structures in Ross Sea (Antarctica) (L. P. Khryanina; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 8, Aug 85).....	53
Error in Method for Flight Tests of Radar Instruments for Measuring Ice Thickness (V. V. Bogorodskiy, A. G. Oganessian; ZHURNAL TEKHNIЧЕСКОY FIZIKI, No 6, Jun 85).....	53





JPRS-UES-86-002

13 FEBRUARY 1986

# USSR Report

## EARTH SCIENCES

### TABLES OF CONTENTS

JPRS-UES-85-001, 31 JANUARY 1985-

JPRS-UES-85-009, 13 NOVEMBER 1985

**FBIS** FOREIGN BROADCAST INFORMATION SERVICE



19 February 1986

## USSR REPORT EARTH SCIENCES

### CONTENTS

#### METEOROLOGY

Calibration of Photoelectric Aerosol Spectrometers (N.K. Nikiforova; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 8, Aug 85).....	1
Features of Metrological Support for Lidar Raman Scattering Spectroscopy for Monitoring Atmospheric Pollution (Ye.K. Ivanov, V.A. Kolvenkov, et al.; IZMERITELNAYA TEKHNICA, No 5, May 85).....	1
Methods in Metrological Support of Laser Sounders for Monitoring Atmospheric Pollution (D.O. Gorelik, T.M. Yengoyan, et al.; IZMERITELNAYA TEKHNICA, No 5, May 85).....	2
Problems in Monitoring Atmospheric Ozone (V.I. Butkevich, G.V. Skvortsova, et al.; IZMERITELNAYA TEKHNICA, No 5, May 85).....	3
Radar Aids Typhoon Assessment (TASS, 9 Aug 85).....	4
Automatic Tsunami Warning System (TASS, 9 Aug 85).....	5

#### OCEANOGRAPHY

Finnish-Designed Vessel to Transport Offshore Drilling Rigs (A. Savchenko; NEDELYA, 21-27 Oct 85).....	6
Floating Dock Towed from Kerch to Murmansk (V. Shchetinin; VODNYI TRANSPORT, 24 Oct 85).....	7

Geological Exploration Ship 'Geolog Fersman' (V. Yeliseyev; LENINGRADSKAYA PRAVDA, 18 Oct 85).....	8
Expedition Study Ocean-Atmosphere System (TASS, 28 Aug 85).....	9
'Akademik Kurchatov' Studies Currents, Ice (DOMESTIC SERVICE, 9 Oct 85).....	10
New Computer Oceanographic Data Bank (DOMESTIC SERVICE, 27 Aug 85).....	11
Aided by a Laser (CINA, 4 Sep 85).....	12
Oceanography Data Bank can Process Satellite Signals (NTR: PROBLEMY I RESHENIYA, No 9, 17 Sep-7 Oct 1985).....	13
Trials of Manned Submersible Craft 'Osmotr' (I. Mogila; TRUD, 22 Nov 85).....	14
Comprehensive Studies in Energy-Active Zone of Gulf Stream, Winter 1983-1984 (38th Voyage of Research Vessel 'Akademik Kurchatov' and 5th Voyage of Research Vessel 'Vityaz') (Yu.A. Shishkov, V.A. Bubnov, et al.; OKEANOLOGIYA, No 4, Jul-Aug 85).....	15
Role of Detritus and Migrating Animals in Feeding of Pelagic Planktonic Fauna of the Boreal and Tropical Pacific Ocean (A.F. Sazhin; OKEANOLOGIYA, No 4, Jul-Aug 85).....	16
Feeding of Diaphus Suborbitalis (Myctophidae, Pisces) in Equatorial Indian Ocean (T.A. Gorelova, V.G. Prutko; OKEANOLOGIYA, No 4, Jul-Aug 85).....	16
Determination of Production of Zooflagellates in Central Indian Ocean (A.I. Kopylov; OKEANOLOGIYA, No 4, Jul-Aug 85).....	17
Diurnal Periodicity of Division of Certain Species of Tropical Shelf Planktonalgae (N.G. Stolbova; OKEANOLOGIYA, No 4, Jul-Aug 85).....	18
Slow Seismic Waves in Sandy Marine Bottom Material (V.N. Nikolayevskiy, N.A. Vilchinskaya, et al.; OKEANOLOGIYA, No 4, Jul-Aug 85).....	18
Local Variations of Nodules in Clarion-Clipperton Ore Province (N.S. Skornyakova, V.V. Gordeyev, et al.; OKEANOLOGIYA, No 4, Jul-Aug 85).....	19

One Modification of Ertel Method for Calculation of Turbulent Exchange Coefficients (T.N. Patsireva; OKEANOLOGIYA, No 4, Jul-Aug 85).....	20
Study of Vertical Structure of Temperature Variation with Half-Day Tidal Period Using Empirical Orthogonal Functions (Yu.N. Golubev, L.V. Cherkosov; OKEANOLOGIYA, No 4, Jul-Aug 85).....	20
Some Features of Medium-Scale Structure of Hydrologic Fields in Western Black Sea (D.I. Trukhchev, Ye.V. Stanev, et al.; OKEANOLOGIYA, No 4, Jul-Aug 85).....	21
Method of Calculating Speed of Large-Scale Currents Based on Density Data (M.A. Zhdanov, V.M. Kamenkovich; OKEANOLOGIYA, No 4, Jul-Aug 85).....	21
Baroclinic Instability of Large-Scale Current in Vicinity of Polymode Experiment (Yu.B. Filyushkin; OKEANOLOGIYA, No 4, Jul-Aug 85).....	22
Effects of Triad Resonant Interactions of Rossby Waves in Ocean (A.P. Mirabel; OKEANOLOGIYA, No 4, Jul-Aug 85).....	22
Free Evolution of Barotropic Geostrophic Turbulence (V.D. Larichev; OKEANOLOGIYA, No 4, Jul-Aug 85).....	23
Example of Numerical and Laboratory Modeling of Convection Development (A.V. Bune, S.N. Dikarev, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 8, Aug 85).....	23
Numerical Modeling of Evolution of Annular Constant Vorticity Areas (V.F. Kozlov, V.G. Makarov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 8, Aug 85).....	24
Structure and Contemporary Activity of Junction Zone Between Sunda Shelf and Southern China Sea Trench (R.G. Kulinich, A.I. Obzhirov; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 85).....	24
Geological Structure of Magellan Mountains in Pacific (B.I. Vasilyev, Yu.B. Yevlanov, et al.; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 85).....	25
Sulfide Ores and Their Relationship to Submarine Volcanoes and Island Arc Hydrotherms (G.P. Avdeyko, S.G. Krasnov; VULKANOLOGIYA I SEYSMOLOGIYA, No 4, Jul-Aug 85).....	26



Convection Beneath Continents and Oceans (V.P. Trubitsyn, A.S. Fradkov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 7, Jul 85).....	26
Basic Features of Structure and Morphology of Volcanic Zone and Individual Submarine Volcanoes in the Vicinity of Katuik and Fu-Kuy Islands on Vietnam Shelf Based on Continuous Seismic Profiling Data (V.I. Bondarenko, A.M. Nadezhnyy; VULKANOLOGIYA I SEISMOLOGIYA, No 5, Sep-Oct 85).....	27
Indirect Effect of Marine Tides on Gravimetric Earth Tides Kapg Stations (A. Venedikov, M.V. Ivanova, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 6, Jun 85).....	27
Allowance for Nonisochronicity of Photochronograph Input Optical System in Registry of Subpicosecond Laser Pulses (G.V. Kolesov, I.M. Korzhenevich, et al.; IZMERITELNAYA TEKHNIKA, No 5, May 85).....	28
Averaged Law of Sound Diminution in Irregular Near-Bottom Sound Channel (V.G. Katsnelson, L.G. Kulapin, et al.; AKUSTICHESKIY ZHURNAL, No 4, Jul-Aug 85).....	28
Theory of Acoustic Noise in Deep Stratified Ocean (O.E. Gulin; AKUSTICHESKIY ZHURNAL, No 4, Jul-Aug 85).....	29
Attenuation of Mean Field During Waveguide Sound Propagation in Ocean with Wave-Covered Surface (D.I. Abrosimov, L.S. Dolin, et al.; AKUSTICHESKIY ZHURNAL, No 4, Jul-Aug 85).....	30
Spatial Coherence and Distribution of Field Intensity in Underwater Acoustic Channel (S.S. Abdullayev, B.A. Piyazov; AKUSTICHESKIY ZHURNAL, No 4, Jul-Aug 85).....	31
Evaluations of Applicability of WKB Approximation in Normal Waves Method (A.M. Plotkin; AKUSTICHESKIY ZHURNAL, No 4, Jul-Aug 85)...	31
Dispersion Spreading of Femtosecond Light Pulses in Crystals, Air and Water (A. Birmontas, V. Vasilyauskas, et al.; KVANTOVAYA ELEKTRONIKA, No 6, Jun 85).....	32
Award Nomination for Work on Geology of Atlantic Floor Endorsed (PRAVDA, 2 Oct 85).....	34

## TERRESTRIAL GEOPHYSICS

Instruments that Can 'See Through the Earth' (MOSCOW NEWS, No 26, 85).....	35
Computing Center Warns of Tsunamis (TASS, 16 Nov 85).....	38
Laser Range Finders, Theodolites Aid Detection of Crustal Movement (TASS, 11 Nov 85).....	39
Post-Glacial Universal Elevation Slows (TASS, 28 Aug 85).....	40
Soviet Union Will Drill 22 Superdeep Holes (TASS, 29 Aug 85).....	41
Discovery in the Field of Earthquake Prediction (ECOTASS, No 22, 27 May 85).....	42
Computer-Aided Earthquake Observations in Far East (S. Saktaganov; SOVETSKAYA ROSSIYA, 20 Oct 85).....	43
Economic Weekly Views CEMA Geological Cooperation (EKONOMICHESKAYA GAZETA, No 41, Oct 85).....	44
Alma-Ata Laser Device Measures Crustal Movement (DOMESTIC SERVICE, 22 Aug 85).....	46
Chronostratigraphy of Sedimentary Basins on North Bering Shelf (A.A. Zabolotnikov; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 85).....	47
Tectonics and Geological Nature of the Asian-Pacific Ocean Transition Zone (N.A. Shilo, I.K. Tuyezov; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 85).....	47
Seismic Model of Crust in Asian-Pacific Ocean Transition Zone of Kamchatka (S.T. Balesta, L.I. Gontovaya; VULKANOLOGIYA I SEYSMOLOGIYA, No 4, Jul-Aug 85).....	48
Thermogenic Structures and Search Criteria for Latent Hydrother- mal Systems Near Petropavlovsk-Kamchatskiy (Yu.P. Masurenkov; VULKANOLOGIYA I SEYSMOLOGIYA, No 4, Jul-Aug 85).....	49
Thermohydrodynamic Models and their Application to Study of Hydrothermal Systems (V.A. Voronkov, A.V. Kiryukhin, et al.; VULKANOLOGIYA I SEYSMOLOGIYA, No 4, Jul-Aug 85).....	49

Precursors of Volcanic Eruptions (P.I. Tokarev; VULKANOLOGIYA I SEYSMOLOGIYA, No 4, Jul-Aug 85).....	50
Specifics of Electromagnetic Field of Multiple-Spaced Arrays of Frequency Sounding and Resistivity Detectors Over Horst (A.N. Kuznetsov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 7, Jul 85).....	51
Magnetotelluric Soundings at $10^{-3}$ - $10^4$ S in Murmansk Block of Kola Peninsula and Central Karelia (S.A. Vagin, I.L. Vardanyants, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 6, Jun 85).....	51

#### PHYSICS OF ATMOSPHERE

Possibility of Studying Fine Structure of Spectrum of Particle Sizes by Inversion of Optical Characteristics (V.D. Bushuyev, I.E. Naats; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 8, Aug 85).....	52
Numerical Study of Lidar Signal Fluctuations Caused by Large- Scale Atmospheric Aerosol Heterogeneities (S.A. Gyngazov, S.I. Kavkyanov, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 8, Aug 85).....	53
Spatial and Temporal Structure of Temperature Field in Atmos- pheric Surface Layer (G.V. Azizyan, B.M. Koprov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 8, Aug 85).....	53
Resonant Phenomena in Geomagnospheric Interactions (M.B. Gokhber, A.M. Buloshnikov, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 6, Jun 85).....	54
Qualitative Methods in Physics of Laser Heating of Metals in Air (F.V. Bunkin, V.A. Galaktionov, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA, No 6, Jun 85).....	54
Bifurcations, Catastrophes and Structures in Laser Thermo- chemistry (F.V. Bunkin, N.A. Kirichenko, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA, No 6, Jun 85).....	55
Some Results of Experimental Studies of Ice Cover Mechanical Properties (V.P. Yepifanov; MEKHANIKA TVERDOGO TELA, No 2, Mar-Apr 85).....	56

## ARCTIC AND ANTARCTIC RESEARCH

Deep Antarctic Boring Yields Ancient Samples (WORLD SERVICE).....	57
IL-14 Planes Determine Arctic Ice Characteristics (TASS, 23 Aug 85).....	58
Antarctic Researchers (TASS, 16 Nov 85).....	59
31st Soviet Antarctic Expedition (DOMESTIC SERVICE, 22 Sep 85).....	60
Antarctic Cruise Plans of Research Ships 'Vize' and 'Zubov' (G. Bregman; VODNYI TRANSPORT, 21 Nov 85).....	61
Work of Scientific Research Icebreaker 'Shmidt' Described (V. Pankov; SOVETSKAYA ROSSIYA, 29 Oct 85).....	62





31 March 1986

## USSR REPORT EARTH SCIENCES

### CONTENTS

#### METEOROLOGY

- Soviet-Vietnamese Studies of Typhoons From Research Ship  
(A. Melnikov; PRAVDA, 18 Dec 85)..... 1

- Selection of Method for Calculating Scattering of  
Impurities in Atmosphere in Standardizing Release of  
Radionuclides From High Sources  
(N. Ye. Artemova; ATOMNAYA ENERGIYA, No 3, Sep 85)..... 2

#### OCEANOGRAPHY

- Work Off U.S. West Coast Planned for Research Ship 'Vityaz'  
(G. Kurov; IZVESTIYA, 17 Dec 85)..... 3

- New Airborne Laser Fluorimeter Tested Successfully  
(DOMESTIC SERVICE, 6 Jan 85)..... 4

- Research Ship 'Shtokman' in Indian Ocean for UNESCO Study  
(VECHERNYAYA MOSKVA, 31 Dec 85)..... 5

- Prize-Winning Work on Laser Diagnosis of Water Environments  
(T. Korsakora; KOMSOMOLSKAYA PRAVDA, 5 Dec 85)..... 6

- Geological-Geomorphological and Biological Studies in  
Caribbean Sea Using Underwater Apparatus (Third Cruise of  
Scientific Research Vessel 'Rift,' 14 August-13 September  
1983)  
(V. P. Nikolayev, V. V. Bulyga, et al.; OKEANOLOGIYA,  
No 5, Sep-Oct 85)..... 7

Expeditionary Studies in the Tropical Atlantic Ocean During the 28th Cruise of the Research Vessel 'Akademik Vernadskiy' (Ye. F. Shnyukov, V. K. Kosnyrev, et al.; OKEANOLOGIYA, No 5, Sep-Oct 85).....	8
Fortieth Cruise of Research Vessel 'Akademik Kurchatov' (V. I. Voytov; OKEANOLOGIYA, No 5, Sep-Oct 85).....	8
Determination of Individual Mass of Copepoda by Body Proportions (V. I. Kuzmicheva; OKEANOLOGIYA, No 5, Sep-Oct 85).....	9
Continuous Seismic Profiling While Drifting (V. N. Moskalenko; OKEANOLOGIYA, No 5, Sep-Oct 85).....	9
Acoustic Method of Estimating Concentration of Nodules on Ocean Floor (Yu. Yu. Zhitkovskiy, A. I. Zotov, et al.; OKEANOLOGIYA, No 5, Sep-Oct 85).....	10
Mesoplankton Along Bulgarian Coast (E. I. Musayeva; OKEANOLOGIYA, No 5, Sep-Oct 85).....	10
Geomorphology of Northern and Central Parts of Shirshov Ridge (Bering Sea) (Yu. D. Yevsyukov, K. I. Sigova; OKEANOLOGIYA, No 5, Sep-Oct 85).....	11
Hydrocarbons in Water and Suspensions in Pacific Ocean and Bering Sea (I. A. Nemirovskaya; OKEANOLOGIYA, No 5, Sep-Oct 85).....	11
Formation of Todorokite and Bernessite in Fe-Mn Nodules of the Black Sea (L. Ye. Shterenberg, A. I. Gorshkov, et al.; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 7, Jul 85).....	12
Lower Miocene Diatoms of the Tropical West Pacific (E. P. Radionova; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 7, Jul 85).....	13
Amphibolites of Shirshov Ridge (Bering Sea) (R. M. Yurkova, A. A. Peyve, et al.; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 7, Jul 85).....	13
Formation Categories of Oceans and Seas (Yu. M. Pushcharovskiy; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 7, Jul 85).....	14

Nature of Gravity Anomalies in Kuril-Kamchatka Arc-Trench-Ocean System, Exemplified in Southern Kuril Arc (V. D. Poberezhnyy, V. N. Senachin, et al.; TIKHOOKEANSKAYA GEOLOGIYA, No 4, Jul-Aug 85).....	15
Dynamics of Contemporary Sedimentation and History of Development of Great Gamov Canyon (Sea of Japan) Based on Underwater Observations (A. S. Astakhov, V. I. Vasilyev; TIKHOOKEANSKAYA GEOLOGIYA, No 4, Jul-Aug 85).....	15
Crustal Models for Various Pacific Ocean Bed Structures (G. I. Semenova; TIKHOOKEANSKAYA GEOLOGIYA, No 4, Jul-Aug 85).....	16
Probable Influence of Kuroshio Current on Distribution of Radiolarian Shells in Bottom Deposits (I. M. Popova; TIKHOOKEANSKAYA GEOLOGIYA, No 4, Jul-Aug 85).....	17
Determination of Thickness of Marine Sandy Sediment Wave Agitation Layer by Static Soundings (N. A. Bogdanov, F. A. Kadik; IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: GEOLOGIYA I RAZVEDKA, No 9, Sep 85).....	17
Sedimentation Bodies of Somalian Abyssal Trench Based on Seismostratigraphic Analysis of Geophysical and Deep Drilling Data (A. Ye. Shlezinger, L. Ye. Shterenberg; IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: GEOLOGIYA I RAZVEDKA, No 9, Sep 85).....	18
Determination of Effective Viscosity in Finite-Dimensional Cascade Turbulence Models (Ye. B. Gledzer, A. L. Makarov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 9, Sep 85).....	19
Structure and Mineralogical Composition of Deep-Water Tropical Atlantic Corals (A. F. Khmel'nitskiy, S. A. Kozak; DOKLADY AKADEMII NAUK UKRAINSKOY SSR, SERIYA B: GEOLOGICHESKIYE, KHIMICHESKIYE I BIOLOGICHESKIYE NAUKI, No 8, Aug 85).....	19
Method for Determining Technical Parameters of Hydraulic Impact Drive for Underwater Drilling (I. G. Shelkovnikov, V. Ya. Kipovskiy, et al.; IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: GEOLOGIYA I RAZVEDKA, No 8, Aug 85).....	20

Principles of Tectonic Regionalization and Description of Structural Elements on Tectonic Maps of Water Area (Yu. A. Kosygin, V. A. Kulyndyshev; GEOTEKTONIKA, No 5, Sep-Oct 85).....	20
New Data on Deep Structure of Mid-Atlantic Ridge at 20°S (Yu. M. Pushcharovskiy, I. N. Yelynikov, et al.; GEOTEKTONIKA, No 5, Sep-Oct 85).....	21
Specifics of Development of Spreading Zones in Contemporary and Paleooceanic Structures (A. S. Perfilyev, V. V. Kopteva, et al.; GEOTEKTONIKA, No 5, Sep-Oct 85).....	22
Deep Magnetic Diapirism of Cuba and Its Structural Significance. Part 1 (V. G. Bovenko, Yu. P. Orovetskiy, et al.; GEOFIZICHESKIY ZHURNAL, No 5, Sep-Oct 85).....	23
Density Model of Indian Ocean Mantle (O. M. Rusakov; GEOFIZICHESKIY ZHURNAL, No 5, Sep-Oct 85).....	23
Relationship of Distribution of Hydrochemical Characteristics to Structure and Dynamics of Baltic Sea Waters (V. V. Kazaryan, V. P. Korovin, et al.; VESTNIK LENINGRADSKOGO UNIVERSITETA: GEOLOGIYA, GEOGRAFIYA, No 21, Sep 85).....	24
Monsoon Variability of Thermohaline Fields and Circulation of Waters in Main Pycnocline in Northwestern Indian Ocean (V. V. Klepikov; VESTNIK LENINGRADSKOGO UNIVERSITETA: GEOLOGIYA, GEOGRAFIYA, No 21, Sep 85).....	25
Geochemical Characteristics of Authigenic Iron Sulfides in Black and Caspian Seas (T. V. Volkova, A. Yu. Mitropolskiy; GEOLOGICHESKIY ZHURNAL, No 5, Sep-Oct 85).....	25
Heat Flow Through Bottom in Western Black Sea (A. D. Duchkov, S. A. Kazantsev; GEOLOGIYA I GEOFIZIKA, No 8, Aug 85).....	26
Hydrocarbon Gas-Hydrate Formation Beneath Bottom of Seas and Oceans (V. Ya. Trotsyuk, I. A. Nemirovskaya; DOKLADY AKADEMII NAUK SSSR, No 4, Oct 85).....	27

Concentration of Elements in Ocean as Geochemical Factor (V. D. Korzh; DOKLADY AKADEMII NAUK SSSR, No 4, Oct 85).....	27
Example of Equivalency of Density Stratification and Rotation Effects (V. A. Vladimirov; DOKLADY AKADEMII NAUK SSSR, No 2, Sep 85).....	28
Geology of San Vicente Island (Cape Verde Archipelago) (M. A. Akhmet'yev, V. I. Kaporulin, et al.; DOKLADY AKADEMII NAUK SSSR, No 2, Sep 85).....	29
New Mineral Varieties of Hydrotalcite-Manasocite Group-- Products of Low-Temperature Conversion of Basalts and Volcanogenic-Sedimentary Rocks on Ocean Floor (V. A. Drita, N. A. Lisitsyna, et al.; DOKLADY AKADEMII NAUK SSSR, No 2, Sep 85).....	29
Magmatism of Major Ocean Morphostructures and Certain Geodynamic Aspects of Its Manifestation (Ye. V. Sharkov, A. A. Tsvetkov; DOKLADY AKADEMII NAUK SSSR, No 2, Sep 85).....	30
North Atlantic Upper Mantle Heterogeneities (N. Ya. Kunin, S. V. Usenko; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 9, Sep 85).....	31
Geothermal Studies in Central Indian Ocean Basin (L. L. Vanyan, A. M. Gorodnitskiy, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 9, Sep 85).....	31
Scattering Matrix and Integrability of Classical Wave Systems With Additional Motion Integral (V. Ye. Zakharov, Ye. I. Shulman; DOKLADY AKADEMII NAUK SSSR, No 6, Aug 85).....	32
Possibilities of Acoustic Thermography of Biological Objects (Yu. V. Gulyayev, E. E. Godik, et al.; DOKLADY AKADEMII NAUK SSSR, No 6, Aug 85).....	32
Marine Landscape Studies: New Approach to Study of Ocean Environment (D. Ye. Gershanovich, V. V. Fedorov; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOGRAFICHESKAYA, No 5, Sep-Oct 85).....	33



## TERRESTRIAL GEOPHYSICS

Active Kamchatka Volcano Studied (TASS, 14 Dec 85).....	34
Seismic Prospecting Without Blasting Tested (TASS, 23 Dec 85).....	35
Structural Elements on Kamchatka Revealed by Anomalous Magnetic Field (V. M. Zimin; TIKHOOKEANSKAYA GEOLOGIYA, No 4, Jul-Aug 85).....	36
Layers of Increased Conductivity in Crust and Upper Mantle Beneath Kamchatka (Yu. F. Moroz; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 9, Sep 85).....	36

## PHYSICS OF ATMOSPHERE

Sound Field of a Point Source in Stratified Moving Two- Component Medium (V. Ye. Ostashev; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 9, Sep 85).....	38
Transfer of Radiation in Model of Broken Cloud Cover Constructed on the Basis of Poisson Point Flux (G. A. Titov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 9, Sep 85).....	38
Light Scattering in Atmosphere With Nonorthotropic Underlying Surface (V. A. Zubov, I. N. Minin; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 9, Sep 85).....	39
Planning of Experiment in Problem of Estimating Intensity of Pollution Sources (V. V. Penenko, V. F. Raputa, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 9, Sep 85).....	39

## ARTIC AND ANTARCTIC RESEARCH

Hydrochemical Indicators of Frontal Cyclonic Eddy in Antarctic Circumpolar Current (A. M. Chernyakova, S. O. Borodkin; OKEANOLOGIYA, No 5, Sep-Oct 85).....	41
Relationship of Elastic Moduli of Moisture-Saturated Frozen Sandy-Clayey Rocks and Ice (A. D. Frolov; IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: GEOLOGIYA I RAZVEDKA, No 8, Aug 85).....	41

Impact Fracture of Ice (V. P. Yepifanov; DOKLADY AKADEMII NAUK SSSR, No 3, Sep 85).....	42
Geodynamic Reconstructions as Method for Predicting Oil and Gas Content of Poorly Studied Regions (as Exemplified by Antarctic) (Ye. R. Aliyeva, Ye. V. Kucheruk; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 9, Sep 85).....	43
New Arctic Drifting Station, SP-28, Planned (A. Ryabushev; IZVESTIYA, 29 Nov 85).....	44
Divers in Pressure Chamber on Board Vessel 'Sprut' (MEDITSINSKAYA GAZETA, 18 Dec 85).....	45
IL-18D Airplane Used in Antarctic Exploration and Transport (T. Nikitina; VOZDUSHNYY TRANSPORT, 21 Dec 85).....	46
SP-28 Arctic Drifting Station to Start Operation in April (I. Podshivalov; SOVETSKAYA ROSSIYA, 28 Dec 85).....	47



7 MAY 1986

## USSR REPORT EARTH SCIENCES

### CONTENTS

#### METEOROLOGY

- Geophysicist Comments on How Solar Activity May Affect Weather  
(GUDOK, No 50 (18385), 28 Feb 86)..... 1
- Thermodynamic Estimate of Climatic System Efficiency  
(A. S. Ginzburg; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA  
ATMOSFERY I OKEANA, No 10, Oct 85)..... 3
- Contemporary Changes in Climate and Paleoclimate  
(M. I. Budyko; IZVESTIYA AKADEMII NAUK SSSR: SERIYA  
GEOGRAFICHESKAYA, No 6, Nov-Dec 85)..... 3
- Determination of Nonglobal Component Against Background of  
Global Radioactive Pollution of Atmospheric Aerosols  
(Z. G. Gritchenko, V. M. Flegontov, et al.; RADIOKHIMIYA,  
No 5, 1985)..... 4
- Assessment of Contemporary Changes in Global Climate  
(K. Ya. Vinnikov; GIDROMETEOROLOGIYA: SERIYA "METEOROLOGIYA",  
SOVREMENNYYE IZMENENIYA GLOBALNOGO KLIMATA, No 8, 1985)..... 4

#### OCEANOGRAPHY

- Manned Submersible 'Osmotr' Developed at Shipbuilding Institute  
(LENINGRADSKAYA PRAVDA, 10 Jan 86)..... 6
- Polish Shipyard Builds Coastal-Shelf Research Catamarans  
(VODNYI TRANSPORT, 6 Feb 86)..... 7
- Metal Content of Ocean Water Studied With Radio Spectrometer  
(KAZAKHSTANSKAYA PRAVDA, 29 Jan 86)..... 8

Cruises of Oceanology Institute's Ships Noted on Anniversary (G. Bregman; VODNYI TRANSPORT, 8 Feb 86).....	9
Role of Biogenic Silica in Formation of Fe-Mn Micronodules (V. V. Petrova, V. N. Svalnov, et al.; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 1, Jan 86)..	10
Post-Sedimentation Transformation of Oceanic Fe-Mn Nodules and Encrustations (L. Ye. Shterenberg, V. A. Aleksandrova, et al.; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 1, Jan 86)..	11
Global Quantitative Continental and Oceanic Sedimentation Balance During Last 150 Million Years (A. B. Ronov, V. Ye. Khain, et al.; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 1, Jan 86).....	11
Approximate Transfer Equations for Polarized Radiation in Media With Strongly Anisotropic Scattering (E. P. Zege, L. I. Chaykovskaya; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 10, Oct 85).....	12
Geophysical Aspects of Heterogeneous Vortex Sheet Dynamics (V. P. Goncharov, V. M. Gryanik; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 10, Oct 85).....	13
Classification of Black Sea Surface Water Based on Temporal T,S Analysis (M. G. Osheverov; VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 5: GEOGRAFIYA, No 1, Jan-Feb 86).....	13
Stochastic Model of Tidal Evolution of Earth-Moon System With Cyclic Change in Resonant Frequency of Ocean (B. A. Kagan, N. B. Maslova; DOKLADY AKADEMII NAUK SSSR, No 5, 1985).....	14
Serpentinites and Gabbroic Rocks of Clarion Fault (Central Pacific Ocean) (Ye. Ye. Lazko; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOLOGICHESKAYA, No 12, Dec 85).....	14
Some Problems in Study and Exploitation of Shelf in Far Eastern Seas (Ye. V. Krasnov, L. A. Segizbayeva; IZVESTIYA VSESOYUZNOGO GEOGRAFICHESKOGO OBSHCHESTVA, No 6, Nov-Dec 85).....	15
Induction of Synthesis of Bacterial Luciferase by Phenobarbital (V. S. Danilov, O. K. Shibilkina; MIKROBIOLOGIYA, No 5, Sep-Oct 85).....	16
Metals of Platinum Group in Abyssal Ferromanganese Nodules (G. N. Baturin, E. I. Fisher, et al.; DOKLADY AKADEMII NAUK SSSR, No 4, Dec 85).....	16



Variations in Field of Mass Velocities in Pleistocene Zone of Underwater Earthquake (B. V. Levin, S. L. Solovyev; DOKLADY AKADEMII NAUK SSSR, No 4, Dec 85).....	17
Features of Deep Structure in Northern Eurasia Determined From Records of Surface Seismic Waves (A. V. Lander, A. L. Levshin, et al.; DOKLADY AKADEMII NAUK SSSR, No 4, Dec 85).....	18
Seismotectonic Effect of Mantle Inhomogeneities of Ocean Active Margins (S. A. Boldyrev, A. B. Yefimov; DOKLADY AKADEMII NAUK SSSR, No 4, Dec 85).....	18
Seamounts Explored on Seventh Cruise of 'Vityaz' (A. M. Gorodnitskiy; ZEMLYA I VSELENNAYA, No 6, Nov-Dec 85).	19
Computer Processing of Oceanographic Data at Far Eastern Scientific Center (Viktor L. Perchuk; PRIRODA, No 1, Jan 86).....	20
Ocean Surface Temperature Field Variability (S. A. Molchanov, L. I. Piterbarg, et al.; DOKLADY AKADEMII NAUK SSSR, No 4, Feb 86).....	21
Thermodynamic Model of Sea Ice (B. A. Kagan, V. A. Ryabchenko, et al.; DOKLADY AKADEMII NAUK SSSR, No 4, Feb 86).....	22
Capillary Solitons in Deep Water (A. S. Monin; DOKLADY AKADEMII NAUK SSSR, No 4, Feb 86).....	22
Influence of Biogenic Factor on Formation of Microstructures of Abyssal Ferromanganese Nodules (G. N. Baturin, V. T. Dubinchuk; GEOLOGICHESKIY ZHURNAL, No 1, Jan-Feb 86).....	23
Some Aspects of Use of Underwater Technology for Collecting Landscape-Geological Information (V. Kh. Gevorkyan, A. I. Dmitriyenko, et al.; GEOLOGICHESKIY ZHURNAL, No 1, Jan-Feb 86).....	24
Quasilinear Theory of Evolution of Surface Waves Under Influence of Wind in Basin With Uneven Bottom (S. Yu. Dobrokhotov, V. M. Kuzmina; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 12, Dec 85).....	24
Theory of Self-Similar Development of Jet in Fluid of Uniform Density (S. I. Voropayev; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 12, Dec 85).....	25

New Form of Wave Equation for Stratified Medium (O. A. Godin; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 12, Dec 85).....	26
Structure of Concentrations of Ferromanganese Nodules (I. N. Goryainov; SOVETSKAYA GEOLOGIYA, No 10, Oct 85).....	26
Hyperbaric Complex for Simulating Dives to 400-500 Meters (A. Blokhin; IZVESTIYA, 30 Dec 85).....	28

#### TERRESTRIAL GEOPHYSICS

Micromotors for Superdeep Drilling Equipment (SOVETSKAYA LITVA, No 42 (12955), 19 Feb 86).....	29
Deep Drilling Efforts To Continue: Benefits, Plans Outlined (Vladimir Mazur; APN DAILY REVIEW, 5 Aug 85).....	30
Gubin's Seismotectonics Law To Aid Earthquake Prediction (Ella Nikolskaya; APN DAILY REVIEW, 5 Aug 85).....	33
Solution of Direct Gravimetry Problems for Vertical Cylindrical Bodies (A. V. Kudrya; GEOLOGIYA I GEOFIZIKA, No 10, Oct 85).....	35
Transient Processes in Electromagnetic Soundings in Electrochemically Active Half-Space (A. A. Ryzhov; GEOLOGIYA I GEOFIZIKA, No 10, Oct 85).....	35
Use of Acoustical Television To Solve Hydrogeological Problems (V. I. Morozov, I. K. Onofriychuk, et al.; RAZVEDKA I OKHRANA NEDR, No 10, Oct 85).....	36
New Data on Geological Structure and Prediction of Oil- and Gas- Bearing Traps in Dnepr-Donets Depression (V. K. Gavrish, A. I. Nedoshovenko, et al.; GEOLOGIYA NEFTI I GAZA, No 1, Jan 86).....	36
Four-Dimensional Seismic Problems (S. P. Starodubrovskaya, A. I. Ravich; IZVESTIYA AKADEMII NAUK SSSR: SERIYA FIZIKA ZEMLI, No 12, Dec 85).....	37
Status and Prospects for Development of Scientific Research in Earthquake Prediction (M. A. Sadovskiy; VESTNIK AKADEMII NAUK SSSR, No 10, Oct 85).....	37
Development of New Aviation Technology for Gravimetric Surveying (K. Ye. Besyelov, P. D. Bagdatlishvili, et al.; EKSPRESS INFORMATSIYA: MORSKAYA GEOLOGIYA I GEOFIZIKA, No 11, 1985)...	38

Results of Field Session of Interdepartmental Scientific Council of State Committee for Science and Technology on Problem 'Study of Earth's Interior and Superdeep Drilling' (N. V. Mezhelovskiy, D. I. Musatov; SOVETSKAYA GEOLOGIYA, No 12, Dec 85).....	39
Premises for Detecting Promising Petroleum and Gas Structures in Devonian Deposits to North of Orenburg Arch (A. Sh. Nazhmetdinov, Sh. Z. Khusainov, et al.; EKSPRESS- INFORMATSIYA. SERIYA: GEOLOGIYA, METODY POISKOV I RAZVEDKI MESTOROZHDENIY NEFTI I GAZA, No 8, 1985).....	40
Manganese Content in Formations Determined in Accordance With Concepts Formulated by N. S. Shatskiy (Ye. A. Sokolova; IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: GEOLOGIYA I RAZVEDKA, No 10, Oct 85).....	40
Paleomorphological Analysis of Upper Visean-Serpukhovo Deposits in Central Part of Dnepr-Donets Depression for Detecting Additional Formations for Petroleum and Gas Exploration Work (B. D. Goncharenko, L. P. Zhestkova, et al.; EKSPRESS- INFORMATSIYA. SERIYA: GEOLOGIYA, METODY POISKOV I RAZVEDKI MESTOROZHDENIY NEFTI I GAZA, No 9, 1985).....	41
PHYSICS OF ATMOSPHERE	
Specifics of Formation of Laser Beams by Optical Systems (Yu. M. Klimkov, T. I. Kuzmina, et al.; IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: GEODEZIYA I AEROFOTOSYEMKA, No 5, Sep-Oct 85).....	42
Modeling of Nonlinear Effects of Plasma Wave Beams on Ionospheric Plasma (G. A. Markov, L. L. Popova, et al.; PISMA V ZHURNAL TEKHNICHESKOY FIZIKI, No 23, Dec 85).....	42
Influence of Thermal and Diffusion Phoretic Forces on Aerosol Particle Capture by Moving Evaporating Droplets (Yu. I. Yalamov, M. G. Markov, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 10, Oct 85).....	43
Possibility of Changing Ozone Content With Intensive Disturbance of Aerosol Component (S. G. Zvenigorodskiy, S. P. Smyshlyayev; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 10, Oct 85).....	43
Ground Haze Under Quasi-Steady Anticyclone Conditions (V. N. Sidorov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 10, Oct 85).....	44

Study of Seasonal Changes of Gravity Wave Parameters in the Meteor Zone (Ye. D. Kalov, N. M. Gavrilov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 10, Oct 85).....	44
Modeling of Global Propagation of Pollutants in Atmosphere (S. G. Chefranov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 10, Oct 85).....	45
Relative Change in Collection Efficiency in Case of Gravitational and Gravitational-Turbulent Coalescence of Cloud Droplets (A. I. Neizvestnyy, A. G. Kobzunenko, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 12, Dec 85).....	46
Vertical Profiles of Atmospheric Spectral Extinction Determined From Balloon Measurements (M. S. Kiseleva, I. N. Reshetnikova; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 12, Dec 85).....	46
Joint Influence of Turbulence and Wind on Signal Power in Radioacoustic Sounding of Atmosphere (A. I. Kon; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 12, Dec 85).....	47

#### ARCTIC AND ANTARCTIC RESEARCH

Dynamics of Continental Glaciations (Ya. - M. K. Punning; PRIRODA, No 12, Dec 85).....	48
Trials of Giant MI-26 Helicopter in Far North (A. Mokrousov; SOTSIALISTICHESKAYA INDUSTRIYA, No 40 (5031), 16 Feb 86).....	49
AN-74 Airplane Tested on Ice Runways in Yakutia (V. Tarutin; PRAVDA, No 39 (24661), 8 Feb 86).....	50
Adaptation Studies Planned for Hike Between Arctic Stations (S. Digantsev; MEDITSINSKAYA GAZETA, No 9 (4558), 29 Jan 86).....	51
Finnish Firm To Build Research Icebreaker for Antarctic (S. Levin; VODNYI TRANSPORT, No 17 (8980), 8 Feb 86).....	53
Nuclear-Powered Lighter-Carrying Icebreaker 'Sevmorput' Launched (Yu. Stvolinskiy; LENINGRADSKAYA PRAVDA, No 44 (21586) 21 Feb 86).....	55
Successful Tests of AN-74 Airplane in Extreme Arctic Cold (O. Borodin; IZVESTIYA, No 47 (21489), 16 Feb 86).....	57

Arctic Operations of KA-32 Helicopter Described (O. Milyukhov; MOSKOVSKIY KOMSOMOLETS, No 28 (14498) 2 Feb 86).....	59
Account of Flight to Antarctica by IL-76TD Airplane (V. Karpskiy; VOZDUSHNIY TRANSPORT, No 25 (1273), 27 Feb 86).....	61
Portable Equipment for Blood Tests on Arctic Expedition (M. Malakhov; MEDITSINSKAYA GAZETA, No 18 (4567), 28 Feb 86).....	63
Work on Making Aviation Technology Withstand Extreme Cold (I. Cherskiy; VOZDUSHNIY TRANSPORT, No 24 (1272), 25 Feb 86).....	64
AN-74 Airplane Tests Continue, IL-86 Trials Begin in Far North (O. Borodin; VOZDUSHNIY TRANSPORT, No 27 (1275) 4 Mar 86).....	66
Pacific Antarctic Studies (MOSCOW DOMESTIC SERVICE, 21 Feb 86).....	67
Plans for Introducing New Aircraft Into Far North Service (V. Yunisov; KOMSOMOLSKAYA PRAVDA, No 34 (18537), 9 Feb 86).....	68
AN-74 Airplane Takes Part in Arctic Expedition Support Work (V. Yunisov; KOMSOMOLSKAYA PRAVDA, No 47 (18550), 25 Feb 86).....	69





22 JULY 1986

USSR REPORT  
EARTH SCIENCES

## CONTENTS

## METEOROLOGY

Computer Modeling Aids Studies of Precipitation Formation (V. Korneyev; IZVESTIYA, No 82, 23 Mar 86).....	1
Progress in Improving Weather Forecasting Viewed (Andrey Pralnikov; NEDEL'YA, No 1, 30 Dec 85).....	2
New Precipitation Map of World Ocean (E.G. Bogdanova; IZVESTIYA AKADEMII NAUK SSSR: SERIYA GEOGRAFICHESKAYA, No 1, Jan-Feb 86).....	3
Drought, Solar Activity Link Established by Leningrad Geophysicists (TASS, 28 Feb 86).....	4

## OCEANOGRAPHY

Electromagnetic Desalinating and Oil Clean-up Method (KAZAKHSTANSKAYA PRAVDA, 18 Mar 86).....	5
Airborne Laser Fluorimeter for Detecting Water Pollution (M. Yermeyants; VODNIY TRANSPORT, No 156, 28 Dec 85)....	6
Research Ship 'Nesmeyanov' Heads for Vietnam Coast (Yu. Yudin; TRUD, 17 Jan 86).....	7
Heated Diving Suit for Offshore Oil Rig Workers (Yu. Anatolyev; NEDEL'YA, No 1, 30 Dec 85-5 Jan 86).....	8

Complex for Ocean Study from Space and Hydroacoustic Stations (SOVETSKAYA ESTONIYA, 18 Feb 86).....	9
Sea Provides Heat for Dwellings (TASS, 27 Apr 86).....	10
Computer-Aided Studies of Tsunami Zones on Pacific Coast (TRUD, 14 Mar 86).....	11
Monograph on Prospective Developments in Oceanology (NTR: PROBLEMY I RESHENIYA, No 5, 4-17 Mar 86).....	12
Three-Dimensional Cauchy-Poisson Problem for Area of Variable Depth (A.A. Dorfman; DOKLADY AKADEMII NAUK SSSR, No 2, Jan 86)	13
New Data on Geology of Yap and Central Faults in Philippine Sea (S. A. Shcheka, R. G. Kulinich, et al.; DOKLADY AKADEMII NAUK SSSR, No 2, Jan 86).....	13
Heat Flow and Geodynamic Model of Western Pacific Ocean Transition Zone (V.I. Il'ichev, Yu. V. Shevaldin; DOKLADY AKADEMII NAUK SSSR, No 2, Jan 86).....	14
Calculation of Spatial Distribution of Dissolved Petroleum Hydrocarbons in Tidal Estuary (V.V. Anikiyev, O.V. Zaytsev; DOKLADY AKADEMII NAUK SSSR, No 6, Dec 85).....	14
Cauchy Problem for Linearized System of Navier-Stokes Equations Considering Compressibility (A.K. Shatov; DOKLADY AKADEMII NAUK SSSR, No 6, Dec 85).	15
Asymptotic Form of Stationary Solutions of the Navier-Stokes Equations for Large Reynolds Numbers (S.I. Chernyshenko; DOKLADY AKADEMII NAUK SSSR, No 6, Dec 85).....	15
Steady Distortion of Shape of Geoid and Normal Gravity Field under Influence of Tidal Potential (S.S. Ivanov; DOKLADY AKADEMII NAUK SSSR, No 6, Dec 85).	16
Experimental Study of Turbulent Diffusion Parameters in Ocean (V.V. Anikiyev, O.V. Zaytsev, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 11, Nov 85).....	16

Influence of Stratification in Near-Surface Water Layer on Intensity of Gas Exchange Between Atmosphere and Water (V. F. Brekhovskikh, V.I. Bratkov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 11, Nov 85).....	17
Physical Interpretation of Law of Frequency of Recurrence of Tsunami Heights (R. Kh. Mazova, Ye. N. Pelinovskiy, et al.; VULKANOLOGIYA I SEISMOLOGIYA, No 1, Jan-Feb 86).....	18
Manganese Accumulation in Fluid Phases Interacting with Rocks or Melts (V.F. Geletiy; DOKLADY AKADEMII NAUK SSSR, No 1, Jan 86).	18
Study of Content of Trace Elements in Marine Aerosols and Surface Microlayer of Sea (V.D. Korzh; DOKLADY AKADEMII NAUK SSSR, No 6, Feb 86)...	19
Nonlinear Waves on Surface of Fluid Layer with Constant Vorticity (V.I. Shrira; DOKLADY AKADEMII NAUK SSSR, No 6, Feb 86)..	19
Dispersion Equation for Plane Capillary-Gravity Wave on Free Surface of Viscous Incompressible Fluid (P.N. Antonyuk; DOKLADY AKADEMII NAUK SSSR, No 6, Feb 86)	20
Underwater Exploration of Ampere Seamount on Research Vessel 'Vityaz' (A. Gorodnitskiy; ZNANIYE - SILA, No 1, Jan 86).....	20
Review of Recent Advances in Oceanography (A.S. Monin; ZNANIYE - SILA, No 1, Jan 86).....	20
Discussion of Reasons for Sea Level Fluctuations (A.P. Lisitsyn; ZNANIYE - SILA, No 1, Jan 86).....	21
Method for Determining Antenna Tilt Angles in Sonar Inter- ferometer (V.B. Vashchenko; GEODEZIYA I KARTOGRAFIYA, No 2, Feb 86).....	21
Morphological-Statistical Objective Classification of Vertical Profiles of Hydrophysical Parameters (I.M. Belkin; DOKLADY AKADEMII NAUK SSSR, No 3, Jan 86)..	22
Increasing Continuous Seismic Profiling Resolution in Research on Oceanic Sediments (S. K. Dyukarev, G. A. Semenov, et al.; OKEANOLOGIYA, No 1, Jan-Feb 86).....	22

Sea Hydrometeorological Measurement Complexes (I.M. Shenderovich; OKEANOLOGIYA, No 1, Jan-Feb 86).....	23
Influence of Surfactants on Damping of Gravity-Capillary Waves: I. Frequency Dependence (A.A. Lazarev, K.V. Pokazeyev; OKEANOLOGIYA, No 1, Jan-Feb 86).....	24
Intensive Synoptic Eddies and Quasigeostrophic Approximation (Z.I. Kizner; OKEANOLOGIYA, No 1, Jan-Feb 86).....	24
Dynamics of Isolated Intrathermocline Eddy (G.I. Shapiro; OKEANOLOGIYA, No 1, Jan-Feb 86).....	25
Application of Dynamic-Stochastic Model in Studying Heat Trans- fer in Hydrophyscal Test Range (I. Ye. Timchenko, S.I. Khlopushina, et al.; OKEANOLOGIYA, No 1, Jan-Feb 86).....	26
Defining 'Cavitation' and 'Cavitation Thresholds' Concepts (M.A. Margulis; ZHURNAL FIZICHESKOY KHIMII, No 3, Mar 86).....	26
Research on Sonoluminescence Mechanism. I. Onset Phase of Ultrasonic Luminescence of Fluid (A.K. Kurochkin, Ye. A. Smorodov, et al.; ZHURNAL FIZICHESKOY KHIMII, No 3, Mar 86).....	27
Influence of Secondary Eddy Currents on Scattering of Admixture in Zonal Flow (V.N. Yeremeyev, L.M. Ivanov, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 1, Jan 86).....	28
Influence of Relative Positioning of Optically Allowed and Forbidden $\pi\pi^*$ - Transitions on Spectral-Luminescent Properties of Organic Compounds (G.V. Mayer; OPTIKA I SPEKTROSKOPIYA, No 1, Jan 86).....	28
Polarization of Two-Photon Excited Fluorescence of Complex Organic Molecules in Vapors (A.P. Blokhin, V.A. Povedaylo, et al.; OPTIKA I SPEKTROSKOPIYA, No 1, Jan 86).....	29
Allowance for Influence of Triplet-Triplet Absorption When Using Optico-Acoustic Effect in Measurements of Quantum Yield of Luminescence from Highly Excited Molecular States (A.A. Krasheninnikov, A.V. Shablya; OPTIKA I SPEKTROSKOPIYA, No 1, Jan 86).....	30
Estonian Academy Head K. K. Rebane Saluted on 60th Birthday (N. Kristoffel; SOVETSKAYA ESTONIYA, 11 Apr 86).....	31

Studies of Thin Surface Films Aim at Seeing Deep Ocean Processes (A. Zaboltn; SOTSIALISTICHESKAYA INDUSTRIYA, 3 Apr 86)...	32
Marine Geology Expedition to Work Off Coast of Guinea (Ye. Guzhva; PRAVDA UKRAINY, 24 Apr 86).....	34
Specialists View Status of Ocean Hydrophysics Research (VODNYY TRANSPORT, 19 Apr 86).....	36

#### TERRESTRIAL GEOPHYSICS

New Seismogeophysical Observatory Installs Muon Telescopes (SOVETSKAYA KIRGIZIYA, No 100, 20 Apr 86).....	38
Laboratory Simulation of Seismic Events (Domestic Service, 16 Mar 86).....	39
Seismoacoustics Enhances Miners' Safety (TASS, 18 Mar 86).....	40
Earthquake Protection, Warning Systems for Nuclear Power Plants (V. Musayelyan; KOMMUNIST, No 73, 23 Mar 86).....	41
Geomagnetic Field Studies May Aid Prospecting, Communications (SOVETSKAYA BELORUSSIYA, No 91, 19 Apr 86).....	42
Continuing Work on EMP Probing of Earth With MHD Generators (LENINSKOYE ZNAMYA, No 66, 16 Mar 86).....	43
Field Studies of Earthquakes' Biological Precursor Phenomena (V. Fremd; KAZAKHSTANSKAYA PRAVDA, No 79, 30 Mar 86).....	45
Tidal Anomalies and Heat Flow in Western and Central Europe (P. Melkhior, A.M. Sadovskiy; DOKLADY AKADEMII NAUK SSSR, No 6, Feb 86).....	47
Conditions for Magnetic Field Generation (V.A. Dubrovskiy; DOKLADY AKADEMII NAUK SSSR, No 1, Jan 86).....	47
Natural Fuel Gases and Petroleum in Amur Region (O.V. Ravdonikas, G.I. Ivanov; TIKHOOKEANSKAYA GEOLOGIYA, No 6, Sep-Oct 85).....	48
Role of Diagenesis in Formation of Ferromanganese Nodules in Clarion-Clipperton Ore Province (Ye.S. Bazilevskaya; TIKHOOKEANSKAYA GEOLOGIYA, No 6, Sep-Oct 85).....	48

Gravity Field of Sea of Okhotsk Region and its Interpretation in Combination with Bathymetric and Seismic Data (V. A. Baboshina, A.A. Tereshchenkov, et al.; TIKHOOKEANSKAYA GEOLOGIYA, No 6, Sep-Oct 85).....	49
Deep Geoelectric Model of Southern Kamchatka (Yu. F. Moroz; TIKHOOKEANSKAYA GEOLOGIYA, No 6, Sep-Oct 85).....	50
Solution of Three-Dimensional Inverse Problem of Gravimetry in Contact Surfaces Class by Local Corrections Method (I.L. Prutkin; IZVESTIYA AKADEMII NAUK SSSR: SERIYA FIZIKA ZEMLI, No 1, Jan 86).....	50
Dynamics of Development of Long-Term Seismologic Precursors (I.L. Nersesov, B.G. Rulev; IZVESTIYA AKADEMII NAUK SSSR: SERIYA FIZIKA ZEMLI, No 1, Jan 86).....	51
PHYSICS OF ATMOSPHERE	
Lasers Measure Atmosphere (TASS, 27 Apr 86).....	52
Specifics of Propagation of Radio Nuclides Discharged into Lower Layer of Atmosphere During Regeneration of Fuel Elements (I.N. Ruzhentsova, R.V. Semova, et al.; ATOMNAYA ENERGIYA, No 5, Nov 85).....	53
Thermophoresis of Spherical Aerosol Particle at Arbitrary Knudsen Numbers (S.A. Beresnev, V. G. Chernyak; DOKLADY AKADEMII NAUK SSSR, No 6, Dec 85).....	53
Theory of Heat and Moisture Exchange Between Finely Disperse Storm-Generated Spray and Turbulent Air Flow (Ye. P. Borisenkov, M.A. Kuznetsov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 11, Nov 85).....	54
Specific Features of Multiple Counting of Particles by Photo- electric Counters (Yu. V. Zhulanov, A.A. Lushnikov, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 11, Nov 85).....	54
Multiwave Laser Soundings of Atmospheric Aerosol: Experimental Research (Review) (A.P. Chaikovskiy; ZHURNAL PRIKLADNOY SPEKTROSKOPII, No 2, Feb 86).....	55



Use of Electron Beam Instruments to Determine Fluctuations in Vertical Refraction Partial Angle (A.S. Kolos; GEODEZIYA I KARTOGRAFIYA, No 2, Feb 86).....	55
Lidar-Radiometric Method for Determining Liquid-Water Content of Cirrus Clouds (V.A. Zhuravleva, O.K. Kostko; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 1, Jan 86).....	56
Absorption of Far IR-Radiation by H <sub>2</sub> O-N <sub>2</sub> Complexes Under Atmospheric Conditions (A.A. Vigasin, G.V. Chlenova; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 1, Jan 86).....	56
Structure of Stably Stratified Atmospheric Surface Layer in Presence of Heat-Releasing Admixture (L. Kh. Ingel; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 1, Jan 86).....	57
Considering Refraction in Leveling with Laser Plane (Yu.S. Galkin, G.G. Pobedinskiy; GEODEZIYA I KARTOGRAFIYA, No 2, Feb 86).....	58
ARCTIC AND ANTARCTIC RESEARCH	
Plans for Evacuating Arctic Station "SP-26", Opening "SP-28" (S. Nikonov; LENINGRADSKAYA PRAVDA, No 63, 3 Mar 86).....	59
More on Plans for Antarctic Research Vessel 'Akademik Fedorov' (VODNYI TRANSPORT, No 47, 19 Apr 86).....	60
Site Selected for Future Arctic Station "SP-28" (A. Ryabushev; IZVESTIYA, No 86, 27 Mar 86).....	62
AN-74 Airplane Landed on 600-Meter Runway on Ice Floe (V. Snegirev; KOMSOMOLSKAYA PRAVDA, No 64, 15 Mar 86)....	63
Head of Arctic Ski-Hiking Group Comments on Experiences (G. Alimov; IZVESTIYA, No 88, 29 Mar 86).....	64
Plans for Airlift Drop of Personnel and Cargo at Arctic Station (S. Nechayuk; KRASNAYA ZVEZDA, No 88, 11 Apr 86).....	65
Dissipation of Mechanical Energy in Ice (V.A. Fomin, V.N. Rodionov; DOKLADY AKADEMII NAUK SSSR, No 6, Dec 85).....	66
Water Freezing and Ice Melting in Disperse Rocks (E.D. Yershov; VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 4: GEOLOGIYA, No 1, Jan-Feb 86).....	66



10 SEPTEMBER 1986

USSR REPORT  
EARTH SCIENCES

## CONTENTS

## METEOROLOGY

Device for Violent Weather Study Based on Thermodynamic Change (O. Nosareva; LENINGRADSKAYA PRAVDA, 29 Apr 86).....	1
International Conference on Air Pollution Modeling (LENINGRADSKAYA PRAVDA, 20 May 86).....	2
Institute's Work on Rainfall Modification in Chernobyl Area (T. Larina; PRAVDA UKRAINY, 24 May 86).....	3
Meteorological Effects of Geotectonic Phenomena Hypothesized (G. Afanasyev; SOVETSKAYA LITVA, 27 Apr 86).....	4
Third International Symposium on Tropical Meteorology (Yalta, 24-31 March 1985) (V.N. Ivanov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 2, Feb 86).....	6
Sharp Enhancement of Precipitation Intensity Accompanying Gravitational Coagulation (V.M. Voloshchuk; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 2, Feb 86).....	7
Status of Research on Anthropogenic Climate Changes (M.I. Budyko; GIDROMETEOROLOGIYA. SERIYA 37.21, METEOROLOGIYA, No 2, 1986).....	7

Synchronous Changes in Activity of Dangerous Phenomena and Their Prediction (B.L. Berri, S.M. Myagkov, et al.; VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 5: GEOGRAFIYA, No 3, May-Jun 86).....	8
---	---

## OCEANOGRAPHY

Nonmagnetic Vessel 'Zarya' Begins Black Sea Cruise (S. Nikonov; LENINGRADSKAYA PRAVDA, 17 Jul 86).....	9
Optical Tomograph Gives Instantaneous Interference Holograms (SOTSIALISTICHESKAYA INDUSTRIYA, 10 Jul 86).....	10
Research Ship 'Strakhov' Begins Atlantic Cruise (VODNYI TRANSPORT, 27 May 86).....	11
Polish-Built Research Ship 'Fersman' in Service (VODNYI TRANSPORT, 27 May 86).....	12
Shipboard Nuclear Analytical Complex for Mineral Prospecting (V. Bratchikova; TRUD, 13 May 86).....	13
IL-18 Meteorological Laboratory Airplane (VOZDUSHNIY TRANSPORT, 29 May 86).....	14
Work With Small Submersible Craft 'Okeanolog' in Far East (SOTSIALISTICHESKAYA INDUSTRIYA, 29 May 86).....	15
Institutes Involved in Aerospace Photography of Seas (V. Shirokov; PRAVDA, 14 Jul 86).....	16
Work on Resonance Robots With Low Power Consumption (I. Ivanov; VECHERNYAYA MOSKVA, 26 May 86).....	18
Example of Eddy Formation in Stratified Fluid (V.N. Anuchin, V.A. Gritsenko; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 2, Feb 86).....	19
Analysis of Lagrangian Statistical Characteristics of Synoptic Currents in Polymode Test Range (N.A. Maksimenko; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 2, Feb 86).....	20
Kinetic Model of Wind Wave Generation by Turbulent Wind (Yu.I. Nikolayeva, L.Sh. Tsimring; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERI I OKEANA, No 2, Feb 86).....	20
Hydrothermal-Sedimentary and Hydrothermal Ore Formations of World (G.A. Cherkashev, S.G. Krasnov, et al.; MORSKAYA GEOLOGIYA I GEOFIZIKA: GIDROTERMALNO-OSADOCHNIYE I GIDROTERMALNIYE RUDNIYE OBRAZOVANIYA V MIROVOM OKEANE, 1985).....	21

Spatial Variability of Baroclinic Transport of Waters by Antarctic Circumpolar Current (A.F. Treshnikov, V.N. Botnikov; IZVESTIYA VSESOYUZNOGO GEOGRAFICHESKOGO OBSHCHESTVA, No 2, Mar-Apr 86).....	22
Soviet Oceanographic Research Near Seychelles Islands (L.A. Ponomareva; ZEMLYA I VSELENNAYA, No 1, Jan-Feb 86).....	22
Structure of North Sea Sector of Middle European Plate (R.G. Garetskiy, V.Ya. Kozhenov; BYULLETEN MOSKOVSKOGO OBSHCHESTVA ISPYTATELEY PRIRODY: OTDEL GEOLOGICHESKIY, No 2, Mar-Apr 86).....	23
Two-Layer Structure of Magnetically Active Layer of Oceanic Lithosphere (E.M. Litvinov, E.A. Vaniyeva; MYULLETEN MOSKOVSKOGO OBSHCHESTVA ISPYTATELEY PRIRODY: OTDEL GEOLOGICHESKIY, No 2, Mar-Apr 86 ).....	24
Capture and Transport of Fragmentary Material by Okhotsk Sea Ice (Ye.I. Archikov, L.Ye. Stepanova; TIKHOOKEANSKAYA GEOLOGIYA, No 1, Jan-Feb 86).....	24
Composition and Structure of Manganese Encrustations in Sea of Japan (L.Ye. Shterenberg, V.A. Aleksandrova, et al.; TIKHOOKEANSKAYA GEOLOGIYA, No 1, Jan-Feb 86).....	25
Method of Search for an Exploration of Marine Oil and Gas Deposits (I.I. Khvedchuk; TIKHOOKEANSKAYA GEOLOGIYA, No 1, Jan-Feb 86).....	26
Magmatism and Atlantic Thermal Springs; Second Cruise of Scientific Research Vessel 'Akademik Boris Petrov' (L.V. Dmitriyev; VESTNIK AKADEMII NAUK SSR, No 4, Apr 86).....	26
Volcanism of Reykjanes Ridge (A.I. Almukhamedov, M.I. Kuzmin, et al.; GEOLOGIYA I GEOFIZIKA, No 3, Mar 86).....	27
Ferromanganese Formations of Submarine Slopes of Kurile Islands Arc (G.M. Gavrilenko, S.V. Khramov; VULKANOLOGIYA I SEYSMOLOGIYA, No 2, Mar-Apr 86).....	28

Raman Spectra of Small Water Clusters (M.A. Buldakov, I.I. Matrosov, et al.; ZHURNAL PRIKLADNOY SPEKTROSKOPII, No 1, Jan 86).....	28
Geological Structure and Development of Sierra Leone Submarine Rise (Equatorial Atlantic) (V.I. Kara, V.A. Lebedev; BYULLETEN MOSKOVSKOGO OBSHCHESTVA ISPYTATELEY PRIRODY: OTDEL GEOLOGICHESKIY, No 3, May-Jun 86).....	29
Characteristics of Suspended Matter and Processes of Modern Sedimentation in Eastern Gulf of Finland (L.K. Barkov, A.V. Budarkov, et al.; VESTNIK LENINGRADSKOGO UNIVERSITETA, SERIYA 7: GEOLOGIYA, GEOGRAFIYA, No 1, Mar 86).....	30
Reaction of Ocean to Typhoons Moving at Various Speeds (Numerical Experiments) (R.G. Grigorkina, Yu.A. Chistyakov; VESTNIK LENINGRADSKOGO UNIVERSITETA, SERIYA 7: GEOLOGIYA, GEOGRAFIYA, No 1, Mar 86).....	30
Relationship Between Morphology and Chemical Composition of Nodules and Composition of Surrounding Sediment (P.I. Piven, P.A. Vaganov, et al.; VESTNIK LENINGRADSKOGO UNIVERSITETA, SERIYA 7: GEOLOGIYA, GEOGRAFIYA, No 1, Mar 86).....	31
Dynamics of Ice Cover in Weddell Sea During 1980 (V.V. Golosov; VESTNIK LENINGRADSKOGO UNIVERSITETA, SERIYA 7: GEOLOGIYA, GEOGRAFIYA, No 1, Mar 86).....	32
Available Potential Energy in Upper Layer of World Ocean V.S. Arsenyev, V.A. Burkov; DOKLADY AKADEMII NAUK SSR, No 4, Apr 86).....	32
Magnetic Properties of Oceanic Borehole Basalts of Woring Plateau (I.V. Kashinskaya, K.V. Popov, et al.; VESTNIK MOSKOVSKOGO UNIVERSITETA SERIYA 3: FIZIKA, ASTRONOMIYA, No 2, Mar-Apr 86).....	33
Formation of Periodic Structures Upon Lateral Convection in Salt Water (V.M. Blinkov, A.M. Gusev; VESTNIK MOSKOVSKOGO UNIVERSITETA SERIYA 3: FIZIKA, ASTRONOMIYA, No 2, Mar-Apr 86).....	33
Transfer of Ozone by Middle Atmosphere Currents (M.S. Rakova, A.Kh. Khrgian; VESTNIK MOSKOVSKOGO UNIVERSITETA SERIYA 3: FIZIKA, ASTRONOMIYA, No 2, Mar-Apr 86).....	34



Achievements of Atlantic Ocean Studies (Ye.F. Shnyukov; GEOLOGICHESKIY ZHURNAL, No 3, May-Jun 86).....	34
Moisture Content of Recent Bottom Sediments of Northwestern Coastal Shelf of Guinea (V.A. Yemelyanov, N.L.M. Sakko, GEOLOGICHESKIY ZHURNAL, No 3, May-Jun 86).....	35
Structure of Magnetic Fields Induced by Linear Insulated Wire Immersed in Sea Water (A.G. Karpenko, L.A. Lobachevskiy, et al.; DOKLADY AKADEMII NAUK SSSR, No 3, May 86).....	36
Polymers That Decrease Hydrodynamic Resistance and Certain Hydrodynamic Problems of Atherosclerosis (M.V. Kameneva, A.S. Parfenov; DOKLADY AKADEMII NAUK SSSR, No 3, May 86).....	36
Interaction of Synoptic Vortices of Finite Amplitude (G.G. Sutyrin, I.G. Yushina; DOKLADY AKADEMII NAUK SSSR, No 3, May 86).....	37
Spatial Correlation of Surface Noise in Acoustic Waveguide (S.S. Abdullayev, B.A. Niyazov, et al.; DOKLADY AKADEMII NAUK SSSR, No 1, May 86).....	37
Acoustic Noise Theory for Randomly Inhomogeneous Ocean (O.E. Gul'in, V.I. Klyatskin; DOKLADY AKADEMII NAUK SSSR, No 1, May 86).....	38
Point Eddies on $\beta$ -Plane and Solitary Rossby Waves (G.M. Reznik; OKEANOLOGIYA, No 2, Mar-Apr 86).....	39
Singular Geostrophic Eddies on $\beta$ -Plane as Model of Synoptic Eddies (V.M. Gryanik; OKEANOLOGIYA, No 2, Mar-Apr 86).....	39
Research on Macroscale Circulation in Atlantic Sector of Antarctic Ocean (V.V. Guretskiy; OKEANOLOGIYA, No 2, Mar-Apr 86).....	40
Synoptic Variability of Water Temperature and Salinity in Canaries Upwelling (V.I. Voytov, V.M. Zhurbas; OKEANOLOGIYA, No 2, Mar-Apr 86).....	41
Transport and Mixing of Ocean Waters in Synoptic Eddy Field According to Polymode Data (N.A. Maksimenko; OKEANOLOGIYA, No 2, Mar-Apr 86).....	41

Spectrum of Energy Flux to Waves (D.V. Chalikov; OKEANOLOGIYA, No 2, Mar-Apr 86).....	42
Seasonal Variability of Thermal Structure of Upper Ocean Layer in Polymode Region (I.M. Belkin, B.N. Filyushkin; OKEANOLOGIYA, No 2, Mar-Apr 86).....	43
Forms of Presence of Iron and Manganese in Waters of Peter the Great Bay (Sea of Japan) (N.N. Bogdanova, V.M. Shulkin; OKEANOLOGIYA, No 2, Mar-Apr 86).....	43
Application of Ellipsometry in Studying Oil Slicks on Sea Surface (K.S. Shifrin, Yu.V. Villevalde, et al.; OKEANOLOGIYA, No 2, Mar-Apr 86).....	44
Mass Species of Oceanic Herbivorous Copepods in World Ocean and Their Ecological Features (A.K. Geynrikh; OKEANOLOGIYA, No 2, Mar-Apr 86).....	45
Plankton in Lower Layers of Black Sea Oxygen Zone (M.Ye. Vinogradov, E.A. Shushkina, et al.; OKEANOLOGIYA, No 2, Mar-Apr 86).....	46
Principles for Automation of Simulation in Biooceanology: Event Approach Concept (M.V. Galperin; OKEANOLOGIYA, No 2, Mar-Apr 86).....	46
Dynamic Characteristics of VDK Sensor for Measuring Velocity (S.Yu. Kuznetsov, N.S. Speranskiy; OKEANOLOGIYA, No 2, Mar-Apr 86).....	47
Research in the Tropical Atlantic (Twenty-Ninth Cruise of Scientific Research Ship 'Akademik Vernadskiy') (N.N. Karnaushenko, V.A. Gayskiy, et al.; OKEANOLOGIYA, No 2, Mar-Apr 86).....	48
Comprehensive Geophysical Research on Fourth Voyage of Scientific Research Ship 'Rift' (V.N. Moskalenko, L.G. Akentyev, et al.; OKEANOLOGIYA, No 2, Mar-Apr 86).....	49
Method for Computing Wave Pressure Forces Operative on Sea Drill Rig Jig (S.S. Khvorostovskiy; IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY: GEOLOGIYA I RAZVEDKA, No 5, May 86).....	50
Filtering in Marine Gravimetry Problems (V.L. Panteleyev; METROLOGIYA, No 1, 1986).....	50

Role of Biological Productivity of Waters in Forming Nodular Ores on Ocean Floor (N.S. Skornyakova, I.O. Murdmaa, et al.; DOKLADY AKADEMII NAUK SSR, No 2, May 86).....	51
Some Drift Patterns of Sofar Floats in Synoptic Eddy Field (V.N. Yeremeyev, L.M. Ivanov, et al.; DOKLADY AKADEMII NAUK SSSR, No 2, May 86).....	52
Spatial-Temporal Analysis of Sea Surface Photoimages (V.M. Burdyugov, S.A. Grodskiy, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 4, Apr 86).....	53
Experimental Research on Three- and Four-Wave Resonant Interactions of Surface Sea Waves (I.I. Strizhkin, V.I. Raletnev; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 4, Apr 86).....	53
Long Essentially Nonlinear Waves in Rotating Ocean (V.I. Shrira; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 4, Apr 86).....	54
Development of Region of Partially Mixed Fluid in Fine- Structured Stratified Medium (V.A. Popov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 4, Apr 86).....	55
Dissipation of Turbulent Energy in Layer of Ocean Wind Waves (A.V. Solov'yev; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 4, Apr 86).....	56
Quasi-Homogeneous Model of Evolution of Turbulent Wake Region Behind Body in Stratified Medium (L.I. Skurin; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 4, Apr 86).....	56

#### TERRESTRIAL GEOPHYSICS

Underground Water Can Be Seen (DOMESTIC SERVICE, 24 Apr 86).....	58
Fossil Finds by Siberian Paleontologists Add to Understanding of Life Development Chronology (TASS, 6 May 86).....	59
New Mineral Found in USSR (TASS, 4 Jun 86).....	60

Forum Participants Comment on U.S. Seismologists at Semipalatinsk (A.Belikov, N. Zheleznov; SOVETSKAYA ROSSIYA, 15 Jul 86).....	61
Kola Superdeep Borehole Described (Ye.A. Kozlovskiy; ZEMLYA I VSELENNAYA, No 1, Jan-Feb 86).....	63
Theoretical Seismograms of Surface Seismic Waves in Anisotropic Media (Ye.M. Chesnokov, S.S. Abaseyev; DOKLADY AKADEMII NAUK SSSR, No 3, 1986).....	64
Use of Seismic Noise in Study of Lithosphere (A.V. Nikolayev, P.A. Troitskiy, et al.; DOKLADY AKADEMII NAUK SSSR, No 3, 1986).....	64
Entrainment of Sediments to Great Depths Under Continents (A.S. Monin, O.G. Sorokhtin; DOKLADY AKADEMII NAUK SSSR, No 3, 1986).....	65
Some Features of Structure of Oceanic Crust in Example of Brazilian Basin (V.G. Kazmin, O.V. Levchenko, et al.; GEOTEKTONIKA, No 2, Mar-Apr 86).....	66
Stages in Tectonic Transformations in Northwestern Pacific Ocean and Its Continental Margin (Ye.N. Melankholina; GEOTEKTONIKA, No 2, Mar-Apr 86).....	66
Tectonic Conditions Favoring Presence of Petroleum and Gas in Sedimentary Basins of Marginal Zones of Continents (Yu.K. Burlin, N.A. Krylov, et al.; GEOTEKTONIKA, No 2, Mar-Apr 86).....	67
Sesimogeology, Geophysical Fields of Mongolian-Okhotsk Seismic Zone and Problems in Earthquake Prediction (V.P. Solonenko; GEOLOGIYA I GEOFIZIKA, No 2, Feb 86).....	68
Features of Distribution of Salt Structures in Dnepr-Donets Depression (N.I. Galabuda, B.I. Malyuk; GEOLOGICHESKIY ZHURNAL, No 1, Jan-Feb 86).....	69
Argillaceous Minerals of Volcanogenic Rocks in Saatly Superdeep Hole SG-1 (A.G. Seidov, M.B. Kheirov; IZVESTIYA AKADEMII NAUK AZERBAYDZHANSKOY SSR: SERIYA NAUK O ZEMLE, No 1, Jan-Feb 86).....	69

Increased-Response Channel for Regional Seismic Station (Yu.V. Shevchenko, B.I. Sennikov, et al.; VULKANOLOGIYA I SEYSMOLOGIYA, No 1, Jan-Feb 86).....	70
Seismic Activity in Zone of Baykal-Amur Railroad Line (V.M. Kochetkov, N.A. Gileva; VULKANOLOGIYA I SEYSMOLOGIYA, No 1, Jan-Feb 86).....	71
Lena-Tunguska Province: Promising Region for Organizing New Petroleum and Gas Production Base in Eastern USSR (A.E. Kontorovich, M.M. Mandelbaum, et al.; GEOLOGIYA I GEOFIZIKA, No 1, Jan 86).....	72
Multiwave Seismic Prospecting in Solving Problems in Predicting Geological Section in Western Siberia (N.N. Puzyrev, G.V. Vedernikov; GEOLOGIYA I GEOFIZIKA, No 1, Jan 86).....	72
Geoacoustic Precursor of Transcarpathian Earthquakes of 5 October 1983 (T.Z. Verbitskiy, B.D. Boyko; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 4, Apr 86).....	73
Results of Geophysical Study of Sakhalin-Kurile Islands- Pacific Ocean Profile (A.N. Petrov, I.S. Mazurova; VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 4: GEOLOGIYA, No 2, Mar-Apr 86).....	74
Biogeochemical Exploration in Eastern Uzbekistan (V.F. Skryabin; RAZVEDKA I OKHRANA NEDR, No 4, Apr 86).....	75
Desertification - Global Ecological Problem (N.S. Orlovskiy; VOPROSY FILISOFII, No 2, Feb 86).....	75
Meteorological Precursors of Major Earthquakes (M.R. Milkis; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 3, Mar 86).....	76
Laser Interferometer for Deformographic Observations in Surkhob Tectonic Fault Region (V.A. Aleshin, A.S. Gorshkov, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 3, Mar 86).....	77
Electromagnetic Radiation of Fracture Surface During Destruction of Ion Crystals (N.I. Gershenzon, D.O. Zilpimiani, et al.; DOKLADY AKADEMII NAUK SSSR, No 1, Jan 86).....	78

Phenomenon of Hydrocarbon Generation From Hyperoxidized Compounds of Carbon and Water (N.V. Cherskiy, V.P. Melnikov, et al.; DOKLADY AKADEMII NAUK SSSR, No 1, Jan 86).....	78
Calculation of Derivative $\Delta T$ Anomalies Using Measurements of Along-Course Gradients in Modulus of Earth's Magnetic Field Strength (V.M. Gordin, V.O. Mikhaylov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ZEMLI, No 2, Feb 86).....	79
Results of Geomagnetic Research in Epicentral Zone of Nazarbek Earthquake of 11 December 1980 (Yu.P. Tsvetkov, K.N. Abdullabekov, et al.; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	80
Deep Electrical Conductivity Model Based on Generalized Global Sounding Results (V.I. Dmitriyev, N.M. Rotanova, et al.; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	80
PHYSICS OF ATMOSPHERE	
Optimal-Microstructural Characteristics of Soil Aerosols (L.P. Dinmukhamezova, I.A. Mogilyuk, et al.; IZVESTIYA AKADEMII NAUK: FIZIKA ATMOSFERY I OKEANA, No 2, Feb 86).....	82
Evaluating Nonlinear Effects in Propagation of Acoustic Pulse in Atmospheric Surface Layer in Inversions (I.P. Chunchuzov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 2, Feb 86).....	82
Experimental Research on Turbulence in Upper-Level Tropospheric Clouds (V.K. Dmitriyev, T.P. Kapitanova, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 2, Feb 86).....	83
Solar Control of Geophysical Phenomena (V.F. Loginov, G.V. Fedorovich; ZEMLYA I VSELENNAYA, No 1, Jan-Feb 86).....	84
Effect of Pulsating Auroras on Frequency-Time Characteristics of Radio Signals Reflected From Auroral Ionosphere (A.A. Arykov, I.N. Bardeyev, et al; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	85
Phase Fluctuations of Ionosphere Radio Signals (V.D. Gusev, M.B. Vinogradova; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	85



Transverse Resonances of Earth-Ionosphere Wave Guide in Auroral Region (V.S. Smirnov, A.A. Ostapenko; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	86
Regular Noise Background in VLF-Radiation and World Thunderstorm Centers (G.I. Druzhin, T.V. Toropchinova, et al.; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	87
Spatial Radio Wave Attenuation During Vertical Sounding of Ionosphere (P.F. Denisenko, V.I. Vodolazkin, et al.; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	87
Effects Occurring During Electromagnetic Field Reception Near Powerful Heat Current (V.N. Kunin, M.S. Aleksandrov, et al.; GEOMAGNETIZM I AERONOMIYA, No 2, Mar-Apr 86).....	88
Radiation Density and Absorption in Vertically Inhomogeneous Atmosphere With Underlying Surface (L.M. Romanova; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 4, Apr 86).....	88
ARCTIC AND ANTARCTIC RESEARCH	
'SP-28' Arctic Station in Operation (SOVETSKAYA ROSSIYA, 22 May 86).....	90
Ships Return From Antartica (DOMESTIC SERVICE, 22 May 86).....	91
IL-18D Airplane Outfitted for Research in Antarctica (V. Belikov; IZVESTIYA, 23 Jul 86).....	92
Research Ship 'Professor Zubov' Returns From Antarctica (T. Volgina; LENINGRADSKAA PRAVDA, 21 May 86).....	93
IL-76md Airplanes Drop Cargo and Personnel at Arctic Station (S. Nechayuk; KRASNAYA ZVEZDA, 24 May 86).....	94
New Search-and-Rescue Equipment Tested in Arctic Exercise (V. Gusarov; TRUD, 30 May 86).....	95
Proposals for Advancement of Year-Round Arctic Shipping (L. Timokhov, N. Mustafin; VODNYI TRANSPORT, 22 May 86).....	96

Coal Gas Migration in Permafrost Regions (V.V. Shershukov, V.N. Khudyakov; SOVETSKAYA GEOLOGIYA, No 5, May 86).....	97
History of Relief Development on Shelf in Eastern Soviet Arctic (A.P. Puminov; SOVETSKAYA GEOLOGIYA, No 5, May 86).....	98

/13046

4 DECEMBER 1986

# USSR REPORT EARTH SCIENCES

## CONTENTS

### METEOROLOGY

- Systems of Coupled Gyrostats in Problems of Geophysical  
Hydrodynamics  
(A.B. Glukhovskiy; IZVESTIYA AKADEMII NAUK SSSR:  
FIZIKA ATMOSFERY I OKEANA, No 7, Jul 86)..... 1

### OCEANOGRAPHY

- 'Era-1' Sonic Depth-Finder for Offshore Oil Prospecting  
(KAZAKHSTANSKAYA PRAVDA, 21 Aug 86)..... 2
- Protruding Lenses Improve Deep-Diving Vehicle Research  
Potential  
(TASS, 8 Aug 86)..... 3
- Larger, Better-Equipped, Deeper-Diving Research Submarines  
Have Been Tested  
(TASS, 8 Aug 86)..... 4
- Joint Atlantic Expedition With French Covers 20,000 Miles  
(TASS, 7 Jul 86)..... 5
- 'Kosmos-1766' Satellite for Ocean Studies Launched  
(IZVESTIYA, 30 Jul 86)..... 6
- Asians, Americans Participate in First Pacific Symposium on  
Sea Sciences  
(Television Service, 13 Aug 86)..... 7

Atlantic Ocean Depths Studied (TASS, 21 Jun 86).....	8
Magnetic Test Area in Black Sea (TASS, 18 Jul 86).....	9
Research Ship 'Samoylovich' Completes Baltic Cruise (A. Kozlovskiy; LENINGRADSKAYA PRAVDA, 23 Jul 86).....	10
Guinean Coastal Shelf Studied From Research Ship 'Kolesnikov' (Ye. Guzhva; PRAVDA UKRAINY, 22 Aug 86).....	11
Thickness and Density of Indian Ocean Sedimentary Cover (O.M. Rusakov; GEOFIZICHESKIY ZHURNAL, No 3, May-Jun 86).	12
Sinking Rate of Fecal Pellets of Barents Sea Mysid Praunus Inermis (Rathke) Determined in Laboratory (Ye.G. Arashkevich, G.M. Vinogradov, et al.; OKEANOLOGIYA, No 3, May-Jun 86).....	12
Comparison of Equations of State of Seawater (Knudsen-Ekman Equation and International Equation of 1980) (O.I. Mamayev; OKEANOLOGIYA, No 3, May-Jun 86).....	13
Contrast-Background Sensitivity of Panoramic Radar and Sonar Systems (V.V. Lobysyn, Yu.I. Lomonosov, et al.; OKEANOLOGIYA, No 3, May-Jun 86).....	14
Fourth Cruise of Scientific Research Ship 'Akademik Aleksandr Nesmeyanov' in Northwestern Part of Pacific Ocean (28 June-21 October 1984) (B.I. Vasilyev; OKEANOLOGIYA, No 3, May-Jun 86).....	15
Density Modeling of Lithosphere in Transition Zones of Pacific Ocean Type (A.G. Gaynanov, D.A. Gilod, et al.; VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIYA 4: GEOLOGIYA, No 3, May-Jun 86).....	15
Influence of Hydrological Regime on Zooplankton Distribution Along Peruvian Coast (A.G. Timonin, M.V. Fint; OKEANOLOGIYA, No 3, May-Jun 86).....	16
Boundary Value Problem for Sea Surface Topography in Sea Current Models (Yu.L. Demin, R.A. Ibrayev; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 86).....	17

Model of World Ocean Climate (M.Ya. Verbitskiy, D.V. Chalikov; OKEANOLOGIYA, No 3, May-Jun 86).....	18
Reaction of Ocean-Atmosphere System to Doubling of Atmospheric CO <sub>2</sub> Content and Its Seasonal Variability (B.A. Kagan, V.A. Ryabchenko, et al.; OKEANOLOGIYA, No 3, May-Jun 86).....	19
Prediction of Synoptic Movements in Polymode Region Using Barotropic Model (V.M. Kamenkovich, Yu.M. Grachev, et al.; OKEANOLOGIYA, No 3, May-Jun 86).....	19
Highly Nonlinear Baroclinic Solitary Rossby Waves (Z.I. Kizner; OKEANOLOGIYA, No 3, May-Jun 86).....	20
Quasigeostrophic Three-Layer Model of Hydrodynamic Instability of Currents for Investigating Eddy Formation Conditions in World Ocean (A.S. Blatov, N.S. Rapiibekova, et al.; OKEANOLOGIYA, No 3, May-Jun 86).....	21
Spatial Variability of Thermal Structure of Ocean Active Layer During Passage of Synoptic Eddies (B.N. Filyushkin; OKEANOLOGIYA, No 3, May-Jun 86).....	22
Dispersion Nature of Secondary Waves in Surf Zone (S.Yu. Kuznetsov, N.S. Speranskiy; OKEANOLOGIYA, No 3, May-Jun 86).....	23
Magnetic Characteristics of Deep Layers of Oceanic Crust and Structure of Anomalous Magnetic Field in Ocean (Ye.A. Nazarova, A.M. Gorodnitskiy; OKEANOLOGIYA, No 3, May-Jun 86).....	24
Sedimentary Structure of Central Basin in Pacific Ocean (G.A. Semenov, O.V. Levchenko, et al.; OKEANOLOGIYA, No 3, May-Jun 86).....	24
Size Structure of Phytoplankton in Western Black Sea During Summer (D.A. Nesterova; OKEANOLOGIYA, No 3, May-Jun 86).....	25
Features of Distribution of Adenosine Triphosphate Concentrations Over Atlantic Ocean Seamounts (A.S. Lopukhin; OKEANOLOGIYA, No 3, May-Jun 86).....	26
Some Aspects of Compilation of Topographic Maps of Reservoirs (T.N. Smirnova; GEODEZIYA I KARTOGRAFIYA, No 7, Jul 86)...	27

Manganese Micronodules in Brazilian Basin of Atlantic Ocean (K.S. Krasovskiy; DOKLADY AKADEMII NAUK UKRAINSKOY SSR, SERIYA B: GEOLOGICHESKIYE, KHIMICHESKIYE I BIOLOGICHESKIYE NAUKI, No 5, May 86).....	27
Silver in Pacific Ocean Ferromanganese Nodules (G.N. Baturin, V.N. Oreshkin; DOKLADY AKADEMII NAUK SSSR, No 1, Jul 86).....	28
Petroleum- and Gas-Formation Scales in Persian Gulf Sedimentary Basin (A.A. Geodekyan, V.Ya. Trotsyuk, et al.; DOKLADY AKADEMII NAUK SSSR, No 1, Jul 86).....	29
Determining Speed of Sound in Water From Hydrological Data (S.L. Kramarenko; GEODEZIYA I KARTOGRAFIYA, No 7, Jul 86).....	30
Marine Geothermal Research on Structures of Apsheron Sill (S.S. Sardarov, S.G. Korniyenko, et al.; GEOLOGIYA NEFTI I GAZA, No 6, Jun 86).....	30
Marine Expeditionary Work of USSR Academy of Sciences and Academies of Sciences of Union Republics (L.M. Brekhovskikh, Ye.M. Kukharkov; VESTNIK AKADEMII NAUK SSSR, No 6, May 86).....	31
Deep Seismic Sounding of Subcrustal Lithosphere in South Atlantic (S.M. Zverev, G.A. Yaroshevskaya, et al.; DOKLADY AKADEMII NAUK SSSR, No 2, Jul 86).....	32
Swell Transformation in Alguhas Current (Ye.Sh. Gutshabash, I.V. Lavrenov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 6, Jun 86).....	33
Azimuthal Dependence of Sound Pressure in Stratified Moving Medium (V.Ye. Ostashev; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 6, Jun 86).....	34
Stresses in Upper Mantle of Active Margins of Ocean (S.A. Boldyrev, A.B. Yefimov, et al.; VULKANOLOGIYA I SEYSMOLOGIYA, No 3, May-Jun 86).....	34
Case of Modulation Wave Scattering in Wave Interaction on Statistically Rough Surface (I.B. Yesipov, V.V. Zosimov, et al.; IZVESTIYA AN SSR: FIZIKA ATMOSFERY I OKEANA, No 5, May 86).....	35



Laboratory Study of Effects of Oil Film on Water Evaporation Under Windy Conditions (V.V. Ivanov, M.P. Kolomeyev, et al.; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 5, May 86).....	36
Behavioral Nature of Surface Gravitational Wave Spectrum on Horizontally Nonuniform Current (I.V. Lavrenov; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 5, May 86).....	36
Calculation of Earth-Moon System Tidal Evolution Based on Mathematical Model of Tides in Paleo-Ocean (Ye.V. Polyakov; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 5, May 86).....	37
Simulation of Modern Climate Based on Ocean-Atmosphere-Ice System (M.Ya. Verbitskiy, D.V. Chalikov; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 5, May 86).....	37
Frequency Spectra of Ocean Surface Temperature Anomalies (L.I. Piterbarg; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 3, Mar 86).....	38
Resonance Structure of Spectral Components of Ocean Acoustical Field Under Atmospheric Pressure Effects (O.E. Gulin, V.I. Klyatskin; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 3, Mar 86).....	39

#### TERRESTRIAL GEOPHYSICS

New Seismic Regionalization Method (TASS, 23 Jun 86).....	40
Earthquake Forecasting Based on Seismogenic-Zone Studies (SOVETSKAYA KIRGIZIYA, 21 Aug 86).....	41
Work of Seismic Station for Monitoring Nuclear Tests Described (A. Pokrovskiy; PRAVDA, 26 Jul 86).....	42
Relationship Between Structural-Morphological Characteristics of Gold-Bearing Quartz Vein Formations and Tectonic Position of Ore-Bearing Dikes and Sills in Northeastern USSR (A.I. Kalinin, V.M. Olshevskiy; DOKLADY AKADEMII NAUK SSSR, No 2, Jul 86).....	43
Gold-Bearing Silts of Glacial Lakes and Their Gold Fraction (T.T. Taysayev, S.I. Prokopchuk; DOKLADY AKADEMII NAUK SSSR, No 2, Jul 86).....	43

Identifying Criteria for Prospecting for Reef Formations by Combined Modeling of Wave and Electromagnetic Fields (N.P. Ugarova, O.A. Ageyeva, et al.; GEOLOGIYA NEFTI I GAZA, No 6, Jun 86).....	44
New Principles for Stratification of Sedimentary Floor of Sea Areas (V.O. Savitskiy, I.I. Khvedchuk; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 86).....	45
Seismostratigraphic Breakdown of Section of Neogene Deposits in Southeastern Region of Northern Sakhalin (Yu.V. Lopatnev, I.K. Tuyezov; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 86).....	46
Horizontal Movements of Earth's Surface in Neighborhood of Central Sakhalin Deep Fault (N.F. Vasilenko, Ye.D. Bogdanova; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 86).....	47
Low-Temperature Changes of Magmatic Rocks on Sea of Japan Floor (A.V. Mozherovskiy; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 86).....	47
New Data on Structure of Kurile-Kamchatka Trench (B.I. Vasilyev, I.A. Tararin, et al.; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 86).....	48
Gravity Anomalies and Their Relationship to Crustal and Upper Mantle Structure in Middle Kuriles Region (V.Yu. Kosygin, V.N. Senachin, et al.; TIKHOOKEANSKAYA GEOLOGIYA, No 3, May-Jun 86).....	49
Volcanic-Tectonic Model of Ocean Formation (A.Ye. Svyatlovskiy; VULKANOLOGIYA I SEYSMOLOGIYA, No 3, May-Jun 86).....	50
Inertial Model of Focus and Possibilities of Predicting Repeated Earthquake (A.V. Vvedenskaya; VULKANOLOGIYA I SEYSMOLOGIYA, No 3, May-Jun 86).....	50
Concentration of Seismogenic Faults Parameter as Precursor of Strong Earthquakes on Kamchatka (A.D. Zavyalov; VULKANOLOGIYA I SEYSMOLOGIYA, No 3, May-Jun 86).....	51
Variant of Long-Range Seismic Prediction for Kamchatka Bay and Kronotskiy Peninsula (A.V. Vikulin; VULKANOLOGIYA I SEYSMOLOGIYA, No 3, May-Jun 86).....	52

## PHYSICS OF ATMOSPHERE

Atmospheric Front Precipitation Intensity Spectra (A.A. Lyakhov, N.P. Shakina; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 86).....	53
Atmospheric Wind Sounding Using Continuous Doppler Systems (A.G. Gorelik, V.V. Sterlyadkin; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 86).....	54
Light Propagation in Stratified Medium With Highly Anisotropic Scattering (V.S. Remizovich, D.B. Rogozkin, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 86).....	55
Variability of Temperature Fluctuation Spectra in Atmospheric Boundary Layer (V.A. Bezverkhnii, A.S. Gurvich, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 7, Jul 86).....	55
Improved Method for Determining Vertical Refraction (V.V. Vinogradov; GEODEZIYA I KARTOGRAFIYA, No 7, Jul 86).....	56
Spectral Light Scattering Coefficients for Atmospheric Surface Layer (M.A. Derbisalin, G.Sh. Livshits, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 6, Jun 86).....	57
Use of Spherical Harmonics in Determining Radiation Transfer in Broken Clouds (T.B. Zhuravleva, G.A. Titov; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 6, Jun 86).....	58
Giant Aerosol Clouds Studied With Airborne Laser Complex (L. Levitskiy; IZVESTIYA, 8 Aug 86).....	58
Possibility of Determining Effective Photon Path Length in Clouds in IR Spectral Region Using CO <sub>2</sub> Absorption Band 2.06 $\mu$ m (Ye.I. Grechko, S.V. Dvoryashin, et al.; IZVESTIYA AKADEMII NAUK SSSR: FIZIKA ATMOSFERY I OKEANA, No 6, Jun 86).....	59
Variations in Optical Properties of Stratospheric Aerosol (M.S. Kiseleva; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 5, May 86).....	60

Highly Disperse and Submicroscopic Arid Zone Aerosol (Yu.V. Zhulanov, V.A. Zagaynov, et al.; IZVESTIYA AN SSSR: FIZIKA ATMOSFERY I OKEANA, No 5, May 86).....	61
---	----

#### ARCTIC AND ANTARCTIC RESEARCH

Icebreaker 'Shmidt' Back From Research Cruise in Arctic (A. Minayev; PRAVDA, 25 Aug 86).....	62
New Antarctic Exploration Vessel (DOMESTIC SERVICE, 28 Apr 86).....	63
Polar Stations Measure Pollution From Europe (TASS, 23 Jun 86).....	64
New Data on Position of Bellinsgauzen Glacier (V.N. Yakovlev, A.D. Kovalev; IZVESTIYA VSESOYUZNOGO GEOGRAFICHESKOGO OBSHCHESTVA, No 3, May-Jun 86).....	65
Anthropogenic Effects on Arctic Atmosphere (K.Ya. Kondratyev; IZVESTIYA VSESOYUZNOGO GEOGRAFICHESKOGO OBSHCHESTVA, No 3, May-Jun 86).....	66
Some Patterns in Arctic Basin Ice Thickness Distribution (Ye.U. Mironov; IZVESTIYA VSESOYUZNOGO GEOGRAFICHESKOGO OBSHCHESTVA, No 3, May-Jun 86).....	67

/9835

END

**END OF**

**FICHE**

**DATE FILMED**

6 May 1987